

THE CATALOG FOR OUR FUTURE HOME

Eszter MOLNÁR,¹ Ágnes BORSOS²

Pécsi Tudományegyetem Műszaki és Informatikai Kar, Pécs, Magyarország

¹ meszter.arch@gmail.com

² agnesborsos@mik.pte.hu

Abstract

Today's continuously growing society has a strong influence on efficiency within the construction industry. The need to build new homes in a shorter period of time increases. Finding the solution to this problem is a key element in today's world. In connection with this there was a defining initiation in the 1900s with the development of „type design”, which even today has a significant role in architecture. These „type design” buildings used parts which were prefabricated, making certain phases of construction quicker. At the end of the XX. century the appearance of these plans seemed to be insufficient for the expected result. In the XXI. century there is an attempt to create another plan sample catalogue which can reflect building to productivity and try to minimize the time for home development.

Keywords: *home, future, catalog, type design, prefabrication.*

1. Introduction

The development of homes is a prominent issue today, one which still needs to be addressed. Our current efforts reflect this, since more and more funding is dedicated to home development, to satisfy everybody's needs. However the appearance of these foundations does not always provide an instant solution to the issue. The burden which is on the building industry tends to increase, and will soon lead to the point where the industry will be unable to complete the tasks (in time) which are assigned to them. The biggest problem is the lack of skilled workers and materials, which leads to continuous delays and additional costs. These issues were in the forefront also in the XX. century, and people are trying to find solutions to them. We haven't solved the problem yet, but there is a serious attempt at the development of a new plan sample catalogue. The catalogue involves numerous type designs both from contemporary and previous building styles. These are plans and ideas which can be applied, reused or copied in various areas and installation situations. The key element of these buildings is that they represent a new value in each and every situation with the

preservation of the basic element of the plan, but tailored to the current situation. The type designs, along with a construction plan, involves a BIM model, which can be used for inspection or in the event of a disruption, or any other issues which appear during the design phase.

2. Type Designs' of the XX. century

The population of Europe since 1950 has increased by approximately 200 million [1]. The building industry is trying to keep pace with this continuously growing society and its new demands. As a result of the industrial revolution in the 20th century numerous technologies emerged, resulting in the development of construction technology. The newly appearing tools not only formed the method of certain technologies, but also determined a key role in everyday life functions (Figure 1). The development of cities led to population growth, while the villages started to decrease in population and in wealth. Approximately 507 settlements became „sack-settlements” which means the settlement only connects to a main road with one street, there is no transitive road or railway route. As a result of urbani-

sation the financial situation of these settlements decreased and from 1970-2011 the population of these decreased by 71%. [2] To prevent these settlements becoming completely abandoned, several initiatives started in the early 1900-s. One of the first steps was the initiation of Ignác Darányi for supports. These were followed by the ministerial actions. The main aim of this initiation, called sample house action, was to develop a plan sample for a house. These actions were followed by Ödön Lechner's competition, which appeared at the same time as the aid supports for loans. The first loans were announced in 1927 by the Falusi Kislakásépítő Szövetkezetek (Cooperations of the village small house builders). 43000 people were given loans for house building only. In 1940 the Országos Nép- és Családvédelmi Alap (National Nation and Family Protecting Founding) was established. As a consequence 12000 type homes were built for people, and families in need.

The sample plans were used, with the influence of the neighbourhood during the design of the houses. In 1948 a catalogue was published which contained the competition works which were made for the Lechner Knowledge Centre compe-

tition. The work was divided into three sections, farmer family houses, (blue collar) workers' family houses, and family houses for intellectual workers. A decree was made at the same time which stated that the permissions for these houses must be free of charge. After World War II the centrally built houses, and village homes became widespread. The centrally built houses were used to provide a secure home for the worker families close to company buildings, placing them in better comfort. The building of 200 homes was to be helped by introducing loans, proper materials and reliable workers. Furthermore they claimed to help the nation with 10 billion forints used as long term loans, and type designs. At the end of the 1960s as a result of another competition, János Bitó's plan was built, which became a key part of the type designs. The materials and technologies were considered during the competition in terms of feasibility. At the end of the 1970s there was an other similar competition, which contained 135 plans and 2 more catalogues were made from it, with the title: Recommended Plans for Private Home Building, and Family homes (Figure 2). In this period these type designs became well

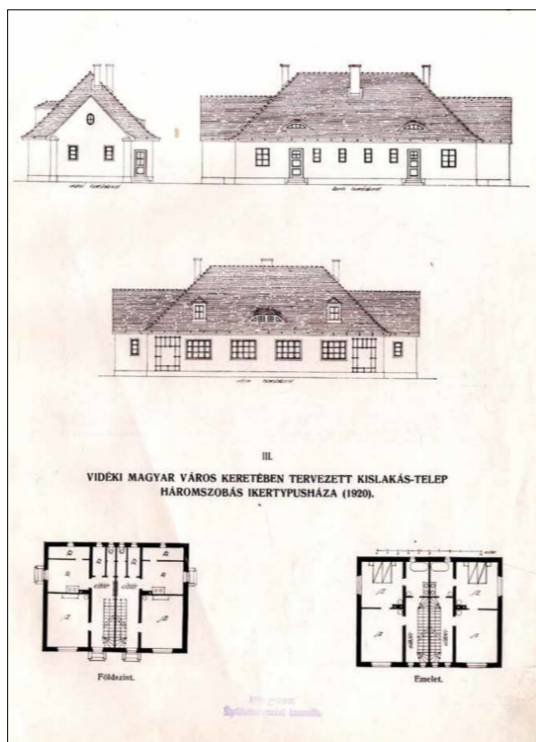


Figure 1. Three-room twin type house designed in the framework of a rural Hungarian town, 1920. [3] - 1/18 picture.



Figure 2. Recommended Plans for Private Home Construction, 1988 [3] - 10/18 picture.

known and in 10 years more than 100 000 plans were sold. Alongside the continuous development of type designs, a need slowly appeared for extension buildings and attic insulation. From 1990, the type designs of corporations started to rule the market. This made an impenetrable supply. At the same time private interest became more dominant, and private architects began to take control over family home building. [4]

3. Type Designs' of the XXI. century

In the twenty-first century, the number of model units started to decrease due to the evolving by-interests that became more important. In 2015-2016 an edict called Family Home allowance was established to help financially those families who would like to have their own real-estate. Statistical data from Lechner Knowledge Centre shows that the number of city residents increased from 2001 until 2011 [5]. This urbanization was able happen due to the favourable circumstances provided by cities. There is a wider range of workplaces, schools and living conditions. This solution looks easier than commuting from villages to city centres. Interactive maps from Lechner Knowledge Centre shows how the low number of village residents changes [6]. Another map from the same source shows how the number of buildings that are living spaces changed in the different stages of life. The biggest building percentage

integrated sparsely through the whole are of our country between 1971-1980. Between 2011-2014 this percentage was limited to Budapest and its region, and additionally to one or two bigger cities [7]. There is data proving that more and more people are searching for homes in bigger cities, leaving their home towns. To stop this increasing, in 2019 the government established the Family Home allowance for those who would like to live in villages. In villages a family house, compared to a flat in bigger cities, can be purchased for a favourable price. It should be mentioned that these data can vary by regions, and can be higher as we go closer to bigger cities. Lechner Knowledge Centre in 2019 April published a national idea competition to create a new model plan catalogue, that would be shown in 2020. From the 273 received ideas 93 house plans were purchased. These categories were advertised by serving daily needs: re-thinking of Hungarian cubics in the form of smart houses (Figure 3).

While designing these objects, flexibility to different building methods and terrains should be considered. The goal is to create real-estate that can be designed and built easily and to keep the time spent on this process low even if any issues occur. Thanks to this, these plans have a necessary number of permissions and are built of pre-produced elements. We can find increasingly better and different striking solutions between the



Figure 3. Lechner Sample Design Catalog: Cube House remodelling, design by Csilla Hegedüs. [8]

purchased buildings, however every plan reflects the form of villages. With this new model plan catalogue a new era can begin in the development of villages. By these institutions in the separated villages with low numbers of residents modernization and technological developments can appear. The model catalogues can offer a solution for not just those who would like to create their own home but it can give some guidance for designers who would like to gain inspiration from different styles, so they can develop and widen their perspective. The purpose of model plans is to pre-produce necessary elements and set them up in the required area. These solutions – as can see in the picture – can influence the building period. In the introduction we mentioned the creation of the BIM model which is a novel thing in the world of model plans, since in the twentieth century it did not exist. These plans can be viewed by tablets and other portable electronic devices. These plans do not contain hidden expenses because a predefined schedule belongs to them. In the diagram we show the difference which in every case assumes the worst and most expensive scenario (Figure 4).

4. Smart Home

In this section we will present our plan, which was prepared for the model plan competition, and also its conception a conclusion. Our inspirations in creating the plan were [9–19]. The smart house category selected plays a significant role in

the ageing villages' development, because nowadays it is important to modernize the building there. In the planning of the floor map I took into consideration the relationship between different rooms and also social changes. Nowadays American kitchens are very popular, hence in my plan I used it also. Open and connected spaces becomes more practical and esthetically vital. This is also true for both ground floors and upstairs because with optical effects we can increase open spaces (Figure 5). Windows on the building strengthen the optically enhanced sense of space (Figure 6). Functions were designed to be applicable at different orientations. When designing rooms, besides orientation, I had to consider defined quadrimeters from the Family Home Allowance program. The plan was created for a family of four, therefore there are three bedrooms upstairs. One of the criteria at the planning of homes was to be able to extend them later on, and it was achieved by a specific room or a garden. In my plan the garage can be transformed into a bedroom and can be reached by one door from the living room and it still remains an intimate space.

In the category of smart homes my goal was to use different natural elements, hence on the roof we can find solar cells that serve the house's energy resource. In the plan I have put electronic heating and air conditioning that do not require huge use of energy. The frame of the house could be built from pre-produced elements that could make the construction easier.

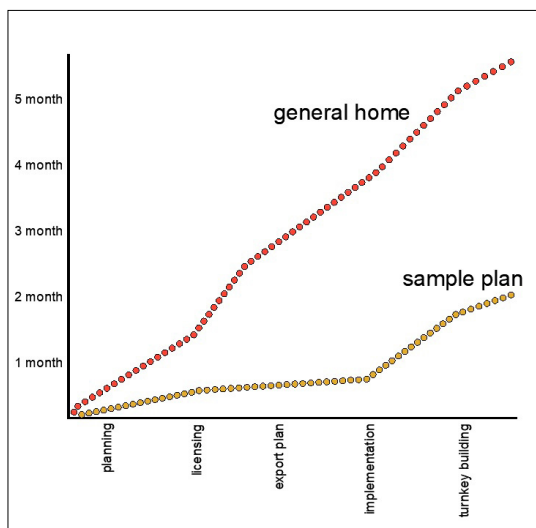


Figure 4. Cycles for creating sample plans and generic homes.

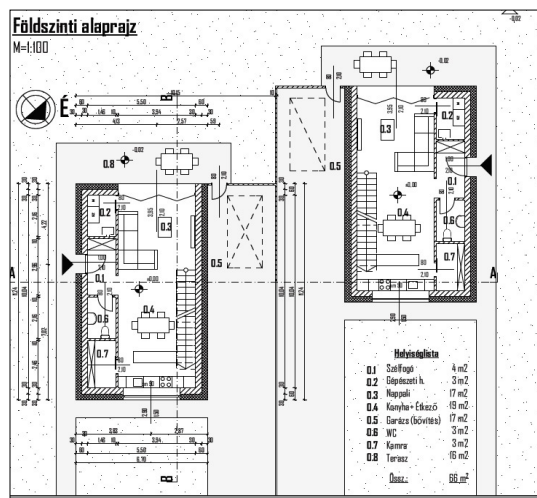


Figure 5. Lechner Sample Design Catalog design contest semi-detached house with detached house.



Figure 6. Lechner's sample design for a design competition for a catalog design competition.

5. Conclusions

The challenge of model plan catalogues is still sustainability and integration into everyday life. The catalogue created by Lechner is planned for fifty years, which can be taken as an experimental period that can show how these plans can become reality. In these plans we can find coeval architectural elements and traditional crafts. My plan was also formed in this spirit and goes through further improvements in order to make it more liveable and relevant while complying with all needs from different social layers such as being environmentally friendly. By trying new technologies, structural solutions can be tracked easier in order to make the building interpretable, BIM or other information models can be helpful in this. Thanks to pre-production, the model plan has a serious chance of giving these homes a significant role.

References

- [1] Központi Statisztikai Hivatal: *A világ népessége kontinensek szerint, 1950–2100*. Grafikon. https://www.ksh.hu/interaktiv/grafikonok/vilag_nepessege.html?fbclid=IwAR0Z93Apc-6N11nlPcHnkS1hEyzp1SeFWZTBIP74m7IEM-jE5HBAfMfMljevY
- [2] Lechner Tudásközpont, *Zsáktelepülések kétarcúsága*, 2017. március 1. <http://lechnerkozpont.hu/cikk/zsaktelepuleseink-ketarcusaga>
- [3] Perényi T.: *Mintaházak történeti áttekintése*, Építész Forum, 2016.07.26. <https://epiteszforum.hu/mintahazak-torteneti-attekintese>
- [4] BME Lakóépületek tervezési tanszék: *Családi házak katalógusa: Ajánlott tervek* (letöltve 2019. október 09.)
- [5] Lechner Tudásközpont: *Lakónépesség változása 2001–2011*. <http://portal.lechnerkozpont.hu/arcgisportal/apps/webappviewer/index.html?id=04ca645cf-4794d3ab06eb15e0e59009a>
- [6] Lechner Tudásközpont: *Zsáktelepülések statisztikai adatai* <http://portal.lechnerkozpont.hu/arcgisportal/apps/webappviewer/index.html?id=20352668b-c1040439b9a09101ceb8aaf>
- [7] Lechner Tudásközpont: *Lakásépítések leggyakoribb időszakai* <http://webmap.lechnerkozpont.hu/webappbuilder/apps/foldgomb1701/>
- [8] Lechner Tudásközpont: *Nemzeti mintaterv katalógus 2020*. <http://nmtk.lechnerkozpont.hu/terv/nmtk070>
- [9] *A modern építészet elemei-50 kortárs épület értelmezése*. Terc, Budapest, 2014.
- [10] Építésügyi és városfejlesztési minisztérium: *Lakás és lakókörnyezet 1983–85*.
- [11] Szövetkezeti láncházak, sorházak, Budapest, 1977.
- [12] Építésügyi és Városfejlesztési Minisztérium: *Tervpályázat'79 – magánérs lakóépületek panolos építéstechnológiával*.
- [13] Branczik M., Keller M.: *Korszerű lakás, az óbudai kísérlet*. 1960, Terc Kft, 2011
- [14] Központi Statisztikai Hivatal: *Települések a lét határán, Erősen fogyó népességű törpefalvak Magyarországon*, 2014. április. <http://www.ksh.hu/docs/hun/xftp/idoszaki/regiok/fogyonep.pdf>

- [15] Perényi Tamás: *Mintaházak történeti áttekintése*, Budapest, 2015. november.
<https://epiteszforum.hu/mintahazak-torteneti-attekintese>
- [16] Hornyik Sándor: *A posztkommunista „magyar kocka”*, 2014. április.
<http://meonline.hu/archivum/a-posztkommunista-magyar-kocka/>
- [17] *A magánlakásépítés ajánlott tervei: Családi házak*. Építésügyi Tájékoztatási Központ, Budapest, 1986.
- [18] Körner Zs., Nagy M.: *Az európai és magyar telepszerű lakásépítés története 1945-től napjainkig*, TERC Kft, Budapest, 2007.
- [19] *Kortárs magyar építészet, Többlakásos házak*. TERC Kft., Budapest, 2012.