Modern Approaches in the Typology of Nursing Homes

I V Zhdanova¹, D S Kayasova¹, A A Kuznetsova¹

¹Architecture of Residential and Public Buildings Chair, Academy of Architecture and Civil Engineering, Samara State Technical University, Molodogvardeyskaya str., 194, Samara, 443001, Russia

E-mail: zdanovairna@mail.ru

Abstract. The aim of this work is to explore modern approaches in the typology of nursing homes. World data are provided on the increase in the share of older persons in the total population. As well as the Rosstat data confirming the relevance of studying this topic. Examples of foreign experience in designing and building houses for older persons show a developed functional composition of premises along with the function of accommodation and care - medical care, leisure, trade, sports, nutrition and multifunctional spaces to ensure social interaction of different groups of the population. The study identified a method of "functional improvement" aimed at developing optimal functional interactions between public and residential spaces. A conceptual design has been developed according to the "dynamic" scheme, showing the inclusion of residential blocks in the multifunctional complex. It is determined that in Russia it is necessary to introduce modern approaches adapted to Russian conditions, based on foreign experience. This will increase the consumer qualities of the facility and the level of comfort of living for older people, which is undoubtedly important, will ensure social interaction through the introduction of educational and leisure functions, as well as improve the environmental and aesthetic qualities of the environment.

1. Introduction

There is an increase in the proportion of older people in the total population around the world and this number is increasing every year [1]. A UN report claimed that the number of people over 65 increases by 2% each year, much faster than the population of the Earth in whole. The data obtained in the report "World Demographic Prospects: Revised Edition 2019" predict that by 2050 one in six people in the world will be over 65 years of age (16% of the population), according to the data for 2019 - one in eleven people (9% of the population). The number of people aged 80 and over is projected to triple, from 143 million in 2019 to 426 million in 2050 [2].

The data of Rosstat for 2019 in Russia show that almost 30% of the population are people over 65 years of age [3]. Factors affecting the increase in the number of older persons can be considered: improvement of the quality of health care, active development of medicine, improvement of sanitary supervision [4, 5].

Ageing has a special impact on human health, and age-related changes in the body develop, the number of chronic and special diseases increases, and the risk of situations requiring medical, social and rehabilitation care, as well as outside care increases. Increasing age leads to problems of maintaining the health of older persons, which is not always possible to solve. Due to deteriorating health, a large proportion of older people lose the ability to serve themselves on their own, and become disabled.
According to Rosstat, the number of disabled persons among the elderly in Russia for 2019 is 20.5% [3]. Consequently, the need for care and support for the elderly is increasing.

In a number of countries, as people age and increase their share of the total population, the issue of access of older persons to social health services has become an increasingly important national concern. And they solve this problem through special state programs. In many economically developed countries of the world, a new system is being developed, where care in hospitals and nursing homes has been integrated into a single structure in which needs and care services for older persons can be managed and coordinated. In Russia, on the contrary, there is a problem of integration of older persons into society. The absence of social contacts and emotional non-involvement in society affects on the psychological state of older persons [6]. This poses new challenges for the State and society, which are aimed at creating conditions for the active participation of pensioners in the cultural, social and political life of society [7 - 11].

The above data clearly show the relevance of the study of this topic, as well as the search for new typological elements of specialized housing for older persons. Of course, their physical and mental health depends on a properly organized space for the life and communication of people of retirement age. Therefore, it is very important to study the architectural and planning structures of nursing homes and to identify new approaches that provide social interactions for older persons and contribute to the maintenance of health and physical opportunities.

2. Materials and Methods

The problems of the formation, development and design of nursing homes have recently received close attention. This study is based on works that consider the following issues: mainstreaming of social problems of older persons (Glazychev V.L., Krasnova O.V., Batiy V.M., etc.); Formation of architectural and planning structure of residential environment for elderly people (Shavaliyev A.A., Sokolova A.V., Pershina I.L., Samoilov A.Y.); Creation of an accessible architectural environment for low-mobility population groups (Elin K.M., Melkonian E.A., Ajgihin S.G.). Introduction of new modern approaches in the design and construction practice in the typology of nursing homes will increase the consumer qualities of the facility and the level of comfort of living, provide social interaction, as well as improve the environmental and aesthetic qualities of the environment [12 - 14].

The study sets out the following tasks: to summarize international experience in the design and construction of nursing homes and to identify modern approaches in the architectural and planning organization of homes for people of retirement age.

3. Results

Analysis of the history of development of homes for the elderly people in Russia shows that until the 19th century these facilities were a shelter not only for the elderly, but also for the single, for people without a place of residence, disabled and sick. Such institutions had no service functions, but carried the status of "home for survival. Since then, nursing homes have come a huge way, eventually becoming an essential part of the old age life support system. International experience of designing and construction of these facilities shows a variety of functional and planning structures, with attention to green standards and taking into account the requirements of low-mobility groups of the population.

For example, Seniors Residence + Nursery (France, Nantes, arch. bureau LTA, 2012), located downtown with a restaurant and three-level parking. The ground floor houses living rooms, a recreational area and an interior courtyard. The second floor includes a kindergarten, kitchen and dining room. Residential rooms, a recreational area and medical facilities are also located from the third to fifth floor. On the top floor there are recreational, leisure and medical facilities (figure 1). Different spaces are shared due to the use of color in the interior. This helps navigate Alzheimer’s patients. The main facade has a double curtain wall that allows vegetation to be used on it. Plants are actively drawn along vertical steel cables. This reception protects the building from overheating [15].
Another example is the Retreat and Nurturing Home Wilder Kaiser (Austria, Scheffau, arch. bureau SRAP Sedlak Rissland + Dürschinger Architekten, 2017), located at the foot of the Wilder Kaiser mountain range. The site houses a community garden, a separate garden for people with dementia and a playground for children. The building has 3 floors and a basement. It consists of two compact blocks connected in the central part where they form the atrium. The ground floor houses recreational and administrative areas, kitchen, dining room and technical facilities. The second and third floors include living rooms, a recreational area and medical facilities. All technical rooms (figure 2) are located in the basement. Wooden formwork made of untreated larch emphasizes the facade of the first floor and recessed balconies. The rest of the building is covered with plaster. The sun protection on the windows is provided by wooden inserts made of profiled boards made in local traditions [16].

Nursing and Return Home Bellinzona (Switzerland, Bellinzona, arch. studio Gaggini + Nicola Probst Architecetti, 2017) is located at the intersection of the streets and forms the corner of the city block. The hilly landscape of the area allowed for the division of the section of road where the main entrance is located and the level of the park where all common functions (figure 3) are grouped. The parking lot is designed as a tree-shrunk space. Recreational, administrative functions, kitchen and technical facilities are concentrated on the ground floor. The second floor includes recreational and leisure areas, medical facilities and a dining room. From the third to the fifth floor there are living rooms, dining room, medical facilities and recreational area [17].

Housing for Elderly People in Huningue (France, Hunting, Arch. Dominique Coulon & associés, 2018) is located on the bank of the Rhine. The exceptional situation of the site allowed the location of common zones and a hall on the side of the river. On the territory of the site there is a garden and a field for playing in petank. The building is 2-storey with underground parking. The ground floor houses administrative facilities, housing, a computer classroom, workshops and various recreational areas. In the heart of the building is a staircase leading to the second floor, which houses housing and public spaces (figure 4). The interior of the nursing home is adapted for low mobility groups. A large area of facades is occupied by glazing, which contributes to good natural lighting [18].

The compilation of world best practices in the design and construction of nursing homes has shown that these facilities provide, along with care and accommodation, health and social services, apply energy-efficient technologies and take into account the needs of low-mobility groups. The considered objects show a developed functional composition with inclusion of objects of medicine, leisure, sports, nutrition, education, as well as multifunctional recreational spaces to ensure social interaction of different groups of the population.
4. Discussion

The study within the framework of this work allowed to identify the main and possible functional composition of houses for people of retirement age: agricultural center, cafe-dining room, fitness, SPA-zone, cinema hall, entertainment zone, shops, pavilion for funeral, premises of cult purpose, library, educational classes, premises of circle classes, polyclinic and medical zone, social service, parking. The study of theoretical foundations and international experience in the design and construction of nursing homes allowed to summarize approaches in modern typology, which are based on an integrated approach and are aimed at improving consumer properties and the level of comfort of living [19]. This allowed the study to identify a method of "functional improvement" that aims to develop optimal functional interactions between public and residential spaces. The main directions of the method are interaction of residential spaces with multifunctional spaces: educational, recreational, leisure, medical, commercial, sports, cultural, etc. At the same time this method can develop according to two schemes: "static" and "dynamic." "Static improvement" is a scheme in which an additional maintenance function is introduced into residential units. "Dynamic improvement" is a scheme that allows to include in the multifunctional complex residential blocks for the elderly people, in order to organize social interaction of the population.

This study developed a conceptual model based on a "dynamic" scheme. The facility is a multifunctional complex including a medical care area, sports and health, catering, educational and leisure facilities, to which a residential area for the elderly people has been added. All functional zones are accessible to both residents of retirement age and residents of the nearest residential education. Communication takes place through developed recreational spaces, which are a place of rest and leisure. Thanks to a certain composition of blocks, private spaces for residents of retirement age and walking spaces for visitors of the complex are organized. The location is defined by a good transport junction with the nearest metro station location (figure 5).

The results of the work can be implemented in experimental design, as well as in the educational process, when drawing up a design assignment during diploma design to students who acquire bachelor’s qualifications in the direction 07.03.01 "Architecture."

From the above it can be seen that using modern approaches in the typology of nursing homes it is possible to improve the level of comfort of living and social interaction, to increase the consumer qualities of the object, as well as to ensure the requirements of ecological and aesthetic properties of the environment.
5. Conclusions

Thus, in today's world, the design and construction of nursing homes is a promising direction. In Russia, it is necessary to introduce modern approaches in the typology of nursing homes, drawing on the experience of foreign countries, adapting developments to Russian conditions. The main task is to introduce a residential area for people of retirement age into the center of public life of the population. This will provide conditions for social interactions, support the health and physical activity of older people, ensure the requirements and demands of the modern consumer, and improve the environmental and aesthetic qualities of the environment [20, 21].

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