Methods of housing migrant workers in a megalopolis

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Abstract. The problem of migration of people with a low income level to cities and countries where they could improve their standard of living is one of the most important world problems these days. The paper addresses issues of accommodation of foreign migrants who arrived for a time for earning, in big cities and metropolises of Russia, which are issues of serious concern for big cities all over the world. This problem is especially pressing in megalopolises where a number of social conflicts and interethnic ones in particular, considerably increased, and the urban criminal situation and sanitary state became much worse. Whereas, a thought-out and deliberate approach to solving this problem can harmonize a megalopolis social and urban environment and add significant funds to a municipal budget. Moscow is a characteristic example of a modern city where this problem is a priority nowadays. The paper is focused on addressing architectural planning aspects of housing migrant workers in a city based on on-site inspections of the living conditions of those people in Moscow, studying their legal status, and determining needs and demands of their urban life taking into account a huge experience of design and construction of municipal dormitories for workers gained in the USSR. The authors offer architectural planning variants of optimal accommodation for poor people who arrived to do hard and dirty work, in dormitories that are able, being highly economical with regard to planning solutions, to satisfy the actual needs of migrants so as they could be healthy and could live and work in the city normally. The paper contains recommendations for supplementing laws and regulations available in the Russian Federation nowadays and applicable to this group of population. The paper materials can be useful for formulating architectural planning norms and rules of designing similar type buildings, and legislative norms of accommodation/housing of migrant workers in a city.

1. Introduction
The problem of migration of people with a low income level to cities and countries where they could improve their standard of living is one of the most important world problems these days. The migration policy of Russia has been one of the most complicated and debatable issues over the last two decades. After demise of the Soviet Union and formation of independent states from the former republics, many people found themselves cut off from their historical homeland, family, and separated by borders. In certain countries such as Ukraine, Moldavia, Tadzhikistan, Uzbekistan, Kazakhstan, a tough economic and political situation came about when not only enterprises but also the whole industries were closed and people lost their jobs. There appeared trouble spots in these countries, and certain territories of the adjacent states were affected by military clashes. The Russian Federation has become an attractive place for those people who wish to move and have permanent home here or look for opportunities to earn, and for forced migrants escaping from military collisions
as well. This situation has caused many problems and issues of concern that need to be solved urgently.

There is a mixed attitude to migrant workers in the society. On the one hand, they are people who can do jobs not popular among local citizens. On the other hand, they represent an alien culture being hardly integrated into the Russian environment. In addition, addressing the migrants’ issue involves material resources of our state that might be spent to provide for the Russian citizens’ needs. According to the law “About Refugees” [1] and the law “About Forced Migrants” [2], the state undertook to provide migrant workers with all the vital and essential things they need. However, in practice, these obligations are often not fulfilled or just partially fulfilled that causes the migrants’ discontent. If this assistance is provided, then it causes discontent of the Russian citizens who think that the authorities shall help their own citizens first, and only after that, they can receive “aliens”. Therefore, this issue remains of very high concern and is a permanent topic of discussion in columns of the prints and in other media.

The problem of housing able-bodied citizens from other cities and towns in Russia is most pressing for megalopolises, and for Moscow in the first place. Talking about migrant workers in Moscow, their situation, living conditions and legal status, we should first focus on the situation of migrants in Russia at large. It is important to get an understanding of purposes of their arrival, attitude of the society to them, and ways of solving problems resulting from it. According to the Federal Migration Service’s data, now there are about 11 million foreign citizens in Russia, and 80% of them are the citizens of the countries of CIS. It should be noted that the United Nations Special Commission and other reputable sources give more significant numbers – from 15 to 20 million people [3]. Only 1.5 million of them work legally and have relevant permissions. Where do migrant workers live in Russia and what are their living conditions? About 78% of them live in rented apartments, 15% live in dormitories, and 7% live in cellars and other non-habitable rooms (Table 1).

Number of people living in one room: 10% - 9 people and more, 34% - 5-8 people, 34% - 3-4 people, and 22% - 1-2 people [4]. (Table 2).

**Table 1.** Actual housing of migrant workers in a megalopolis

| Method of housing                                      | Quantity, % |
|--------------------------------------------------------|-------------|
| Rented apartments                                      | 70%         |
| Dormitories                                            | 15%         |
| Hostels                                                | 8%          |
| Cellars and other non-habitable rooms (makeshift barracks) | 7%          |
Table 2. Number of migrant workers accommodated in one room

| Number of people living in one room | 9 people and more | 5-8 people | 3-4 people | 1-2 people |
|------------------------------------|------------------|------------|------------|------------|
| %                                  | 10%              | 34%        | 34%        | 22%        |

Russia has a great experience of housing migrant workers in cities. As far as the country territory is vast and many nationalities live here, internal migration of population has been quite an ordinary phenomenon in Russian history [5]. This problem was solved most efficiently in the USSR. First, after the Revolution, in the hardest years for the country, the problem in question was solved by accommodating migrants in rooms of the city apartments. Soon the authorities began to build dormitories for workers with extensive infrastructure and satisfactory and rather comfortable living conditions [6]. Despite the fact that the Soviet Union experience addressed internal migration, it remains relevant still as far as the Soviet laws allowed migrants working in quite comfortable conditions and ensured personal and professional development. Dormitories for workers were prefabricated buildings with a corridor-type arrangement where a kitchen and toilet facilities were located in one or two places on a floor. For modern living conditions, such an approach to bath and toilet facilities does not seem appropriate but back then it satisfied the norms. In such dormitories, people had enough living space in the rooms. There lived 3-4 people in one room on the average, and they had not only beds but also tables for studies and bookshelves; there were separate rooms for young families. In many dormitories there were supplementary shared rooms, for example, for studies, games, watching TV. In 1970-80s, there appeared sports grounds and playgrounds affiliated with the dormitories [7].

After demise of the USSR, citizens from abroad - from the adjacent countries - surged to Russia. Over the last 20 years migrant workers (Asians mainly) maintaining their origins have almost lost a mental connection with Russia. They do not know Russian and are hardly integrated into the modern Russian life. They are accommodated in rented apartments, cellars, and shabby makeshift barracks in the migrant workers’ areas and contribute to deterioration of a sanitary state and criminal situation in the cities (Table 3).

At present, the situation began to change: it was prohibited to accommodate migrants in cellars of the apartment blocks. However, typical city housing stock is not suitable enough for a phenomenon of this size. Inspection of 70 Moscow dormitories of the Soviet period conducted by the Scientific Institute of Typical and Experimental Design of Moscow in 2011 revealed general depreciation and obsolescence of the dormitories [8]. They too turned out to be unsuitable for such an extensive social phenomenon as migration of workers.

In certain districts of Moscow, in the suburbs mainly, in the former industrial areas, the authorities started to build dormitories for migrant workers purposefully. However, inspection of these dormitories showed that they are hardly suitable for normal accommodation of people who arrived for a time for earning. Their planning does not provide an opportunity to arrange all necessary living facilities. First, there is no necessary air change due to a large number of people living in one room. Second, there is no necessary furniture for placing clothes, bags and other things needed in everyday life. Dwellers have to take necessary pieces of furniture from scrap heaps and stack them in their rooms that causes conflicts with the dormitories’ administration because fire-fighting requirements are
violated. There is a lack of WC facilities and well-equipped kitchens in the dormitories, and supervisors offer to remove dinner tables from the rooms because of poor sanitary conditions.

There is a lack of refrigerators as well, and the dormitory dwellers ask to place them in the rooms rather than in the kitchens because of thefts of food.

**Table 3. Migrant workers’ accommodation areas consisting of makeshift barracks**

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2. Materials and Methods

Based on the conducted inspections, a number of design solutions for optimal housing of migrant workers and creation of necessary work and life conditions for them is offered in the paper. The offered conception consists in housing migrants in 4-5 floor dormitory buildings without lifts, which are supposed to be located, by one or in groups, in specially allocated and secured areas. To ensure optimal and cost-efficient housing of people, a number of compact planning diagrams of dwelling units that can be transformed to larger planning structures, was developed.

These planning diagrams were prepared based on the specially developed norms: minimal size of a living room – 12 m², norm of a living space/area per 1 person – 6 m² minimum (with furniture taken into account). Every room shall be equipped with closets for clothes and shoes as follows: one closet 60x60 cm per 2 people. The number of bed-side tables, chairs, and beds in rooms shall correspond to the number of dwellers. The number of dwellers in one room is established as follows: for single dwellers – from 2 to 8 people in a room, for married couples – 2-4 people in a room. There can be tables in rooms for married couples. Rooms for single dwellers and for married dwellers are suggested to be located in groups separately from each other due to differences in spending spare time. Special attention should be paid to placing refrigerators in dwelling units – 1 refrigerator for 4 people. A refrigerator shall be placed in a room for married dwellers or in a hall of a dwelling unit with a big number of dwellers in a room. There shall be no tables in the rooms for single dwellers. It is recommended to have meals in dining kitchens where there are tables in an amount of 1 table for 8 people if occupied in 4 shifts. The kitchens shall be equipped with electric stoves, kitchen sinks, tables, and dish cabinets. The number of kitchen appliances is calculated as follows: for stoves – 1 burner per 3 people, and 1 sink per 8 people. It is suggested to unite several living rooms by a shared hall with WC facilities. Such a diagram is very compact as far as functionality is concerned and it presents a planning unit, which the whole dormitory building or a part of it can be composed from.

The required number of refrigerators are placed in the dwelling units’ halls. WC facilities for such dwelling units shall be designed as follows: 1 toilet bowl for 12 people maximum, 1 shower room for 12 people maximum, 1 wash-basin for 5 people; additional hygienic facilities (bidets, urinal units) can be placed if necessary. In dormitories shared rooms, for example for laundry, drying and ironing of clothes, and lockers for belongings shall be provided. There shall be separate shared rooms for relax and entertainment – 1 m² per 4 people. If necessary, the number of people that can be accommodated in such dormitories can be increased by placing double-deck beds. However, in this case it shall be ensured that the increased number of dwellers in one room does not violate the above norms and the requirement of a proper air change first of all. Every dormitory shall include a certain number of rooms for families (married dwellers) and a certain number of rooms for single migrant workers (Tables 4, 5).
Table 4. Compact planning diagrams of dwelling units for single dwellers

| Figure 1. For 11-22 people with a shared hall and 2 WC facilities | Figure 2. For 10-20 people with a shared hall and 2 WC facilities |
|---|---|
| Figure 3. Dwelling unit for 17-24 people formed around 2 WC facilities, with a shared kitchen | Figure 4. For 14-24 people with a shared hall and 2 WC facilities |
| Figure 5. For 4-8 people with a shared hall and 1 WC facility | Figure 6. For 8-12 people with two shared halls and 1 WC facility |
Table 5. Compact planning diagrams of dwelling units for married dwellers (family dwelling units)

| Figure 7. For 1 family with a personal hall and 1 WC facility | Figure 8. For 1 family with a personal hall and 1 WC facility |
|---------------------------------------------------------------|---------------------------------------------------------------|
| ![Figure 7](image1)                                           | ![Figure 8](image2)                                           |

| Figure 9. For 2 families with a shared hall and 1 WC facility | Figure 10. For 4 families with a shared hall and 1 WC facility |
|---------------------------------------------------------------|---------------------------------------------------------------|
| ![Figure 9](image3)                                           | ![Figure 10](image4)                                          |

3. Discussions
The planning units offered above can be easily arranged into dormitory buildings by different planning methods that allow achieving various space composition. It allows creating a diverse and expressive architectural appearance for unassertive and cost-effective buildings and adjusting them for an area of any form (Table 6).
Table 6. Space-planning solutions of houses for temporary accommodation

| Figure 1. Linear buildings with 90° turns | Figure 2. High-rise cross-shaped building with a distributive hall in the center |
|------------------------------------------|--------------------------------------------------------------------------------|
| Figure 3. Buildings with a stepped shift | Figure 4. Building with a non-standard turn |


4. Conclusions

The dormitories shall be distributed in a city structure as far as migrant workers are involved in different spheres of urban life and their place of accommodation shall be not far from work.

Creation of comfortable conditions of temporary accommodation for migrant workers is not only an issue of increasing work quality but also an issue of security of citizens as far as migrants not only scavenge the city streets but also build houses, cook food for a great number of people, and drive buses and cars of different purpose. Good, well-organized living conditions of migrant workers in a megalopolis can considerably reduce social tension in a city, regulate the job market, and attract additional funds to a city budget. Experience of opening cheap hostels, a great number of which has recently appeared in Moscow, confirms it as far as even the cheapest hostels bring good profit to their owners. However, hostels are not suitable for housing of foreign migrant workers due to their low occupant load and impossibility to control living of people of different nationality and religion there. Modern dormitories for migrant workers can be self-sustained and can bring profits to a city budget [8,9,10].

If necessary, such dormitories can be used for accommodation of refugees. In this case it will be necessary to add a block of medical rooms with a doctor’s room, medical treatment and isolation rooms to them. Dormitories for refugees shall be suitable for accommodating big families with members of a different age. An opportunity of accommodating older people and families with children shall be provided, so dwelling units for families are obligatory. If a surge of migrant workers from other countries ceases that is unlikely, the dormitory buildings can be used for internal migration needs, or for accommodating people in case of emergency such as fire, earthquakes, etc.

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