House for change

refugee

person who is outside his or her country of origin or habitual residence because they have suffered (or fear) persecution on account of race, religion, nationality, political opinion, or because they are a member of a persecuted 'social group' or because they are fleeing a war.

internally displaced person (IDP)

someone who is forced to flee his or her home but who remains within his or her country's borders.

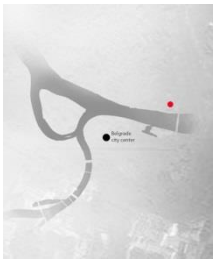
The war years in Croatia and Bosnia-Herzegovina during the ‘90s led to huge migrations of people of Serbian nationality who found refuge in Serbia as their motherland.
Depending on the severity of war conflicts and the source of data, estimates on the number of refugees and internally displaced persons (IDPs) ranged from 350,000 to 800,000. The 1999 war forced the non-Albanian population to flee the territory of Kosovo and Metohija. According to a 2010 UNHCR report, with 86,000 refugees and 21,000 internally displaced persons, Serbia is still at the top of the list of countries in Europe in terms of forced migration, as well as one of the five countries in the world facing a prolonged refugee crisis.

There are three basic ways to permanently resolve the problem of refugees: repatriation to the communities from which the refugees originally came, integration into the communities to which the refugees have settled and migration to a third country.
When the first wave of refuges came, unprepared government provided them accommodation through temporary stay in collective centers. Many abandoned barracks were used in that purpose. During the years, through many programs supported by international communities

and government itself as well as in private initiative, most of the families left the collective centers. Those who stayed in collective centers are those ones who are most effected by poverty. Today, on the territory of the Republic of Serbia there are 25 collective centers accommodating 1,977 people.

One of the Centers is located in one of Belgrade's municipalities. This collective center accommodates 63 families. Considering the fact that most of the families, usually with 6-7 members consisted of three generations, are using the space of the maximum two rooms for all their needs, the quality of living is at very low level. They are usually facing with electricity and heating cuts as well.

Chosen site



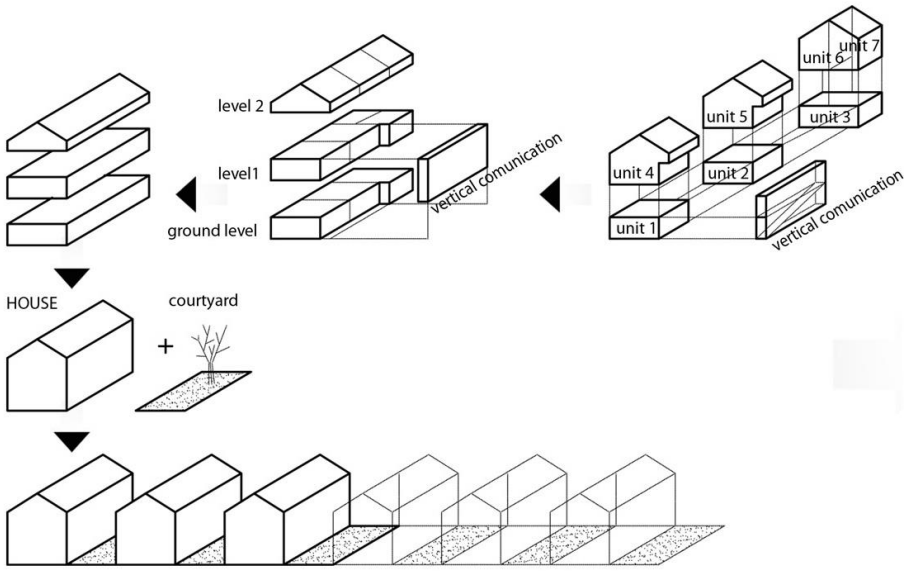
A project of 7 different housing units united in 2 – storey house is situated on an island site bordered with a suburban housing, one large block of multifamily housing and megamarket, on the road leading from bridge over Danube river to the center of Krnjaca neighborhood. In the nearby is current location of the one of collective centers which was one of the reasons why to choose this plot.

This part of Belgrade, developed in last 15 years, is provided with good infrastructure, good transportation connections to the city center as well with school, kindergarden and medical institution. The price of the square meter as well as the price of the property in this neighborhood are significantly lower than in the other parts of the city.

Architectural concept

A simple 2-storey HOUSE concept with A-shaped roof arranged in the row with look onto splendid protected green space which impart a quiet and substantial air to the whole and whose arrangement perpendicular to the road played a key role to choose a layout for each house to be based on a court and not on a street.

The project owes its image of a large house largely to its double pitched roof, which echoes the style imposed by the typical Serbian architecture. The roof is used as the fifth façade which provides continual view leading over facades.



Urban and user-friendly at the same time, the building emphasises its one-way orientation, onto the green courtyard and the next building. These green spaces are used as a buffer zone between two buildings, who can be easily transferred to place of garden gatherings.

At the ground level there are 3 housing units: one small studio, one 1-bedroom apartment and one larger unit with 2-bedrooms and clearly divided space on daily and night zone.

Each one has accesses to the courtyard. The space of the courtyard can be divided so the each family can make their courtyard private with flexible wooden panels. 4 housing units on the first level all consisted of two floor levels each, with all the rooms on the top looking on the both sides of the building. All the living rooms are glazed, with wide sliding windows providing natural light and maximum sunlight. Bathrooms are the only parts in the HOUSE who are not naturally lit.

The space under the staircases is designed to be easily converted into small larders, thus taking into account changing lifestyles and family needs. For each of the housing units there are wide external spaces (courtyard and rooftop terraces). Exterior insulation and a generous provision of natural light mean that the building very easily achieves the very high environmental performance grading. Façade and the roof are covered with sheet metal, colored in dark grey.

Construction system

Building system is not an ordinary ‘panel construction’ but modified classical skeletal system which applies Quattro System technology (recognized and awarded for the innovation by Lafarge in 2011)

Panels are connected in the following manner: wall-to-wall and wall-to-ceiling by means of concrete columns formed by putting up panels and ceilings. Quattro Houses builds so-called massive assembly by cementing all columns and ceilings into one unit. Panels are manufactured in the factory according to projected measures and mounted on the site intended for the future building, where they are fixed into monolith unit.

Turnkey system, applied by Quattro Houses Company, doesn’t only entail construction of a building, but also finishing works, installation works (plumbing, electrical and heating installations) with necessary sanitary devices and other elements.

Each panel in Quattro buildings is a structural wall. Each exterior panel-wall has continuous insulation owing to the application of Quattro technology which has become renowned and awarded due to such type of insulation. Interior walls are also load-bearing walls, and have both sound and thermal insulation.

Main advantages of Q system:

- Construction of low energy buildings with exceptional energy saving up to 80%
- Fast and precise construction
- Affordable construction price as compared to the quality of construction,
- Exceptional resistance to natural disasters (earthquakes, hurricanes etc.)
- Reduced emission of harmful gases caused by heating
- Exceptional thermal and sound insulation
- Stronger connection between two panels ensured by continuous reinforced concrete thermal insulation
- Absence of thermal bridges in all concrete junctures and impossibility of damp and mold build-up
- Maintenance and regulation of desired indoor temperature regardless of outdoor conditions
- Implementation of all types of heating as well as renewable energy sources

Financial calculation

The new construction system opens up the opportunity for meeting the most stringent standards in energy efficiency, speed and quality of construction as well as its affordability. Lower construction price of apartments – more housing units in less time which ensures saving on state budget. Estimated budget for this constructing method, with the Turnkey system, is 500 Euros per square meter.

1 HOUSE= 7 units = 540m2 = 270 000 Euros

Average price of square meter in Belgrade is 1400 Euros.