# A Proposal for using a system of principles and indicators of housing quality and sustainability in Hungary

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## 1. INTRODUCTION

In Hungary, and so in other countries in the region, many housing experts point out, that housing problem is related here mostly to problems of quality. Though for decades posters and slogans proclaimed that the main value was the human being, exactly when housing, the living place of people was addressed, the real needs of people were neglected. During the period of socialism, getting a flat was seen as a basic human right with the concomitant of mass housing. The dominating technocracy, the pure quantitative – and not qualitative – requirements resulted in a relatively large number of new housing units, however mostly without considering the real human needs of the users.

The problem of housing quality still exists, though in another dimension. This includes either the low quality of execution in case of family investments in own family houses constructed with very limited budget or the low architectural (and in several cases also functional) quality of luxury family houses built by the new rich. Thus, a significant part of new constructed houses cannot meet up-to-date quality requirements, not to speak about the issues of sustainability. Currently, only the building regulations prescribe some quality requirements, however these regulations hardly deal with more complex requirements of a living environment, with environmental and health aspects, with the issue of architectural quality and harmony of the built environment. Current housing policy also addresses mainly quantitative aims (as 40000 new housing units/year) and this consequently has a risk of inadequate quality.

With an intention of providing a tool for improving quality, this paper introduces a proposed system of quality requirements and indicators in housing. This tool can serve as a basis for design and investment, for future financing and housing subsidy system in order to finance and subsidize good quality housing and for research & development programs in this field. The awareness of and dealing with the complex problem of quality can help to construct houses, which pay respect to environmental and human aspects, and by taking into account the personal needs of future users, can become really homes.

## ACKNOWLEDGEMENT

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## 2. THE INCREASING SIGNIFICANCE OF QUALITY

Concurrently with changing lifestyles and the increasing peace of life also housing needs and requirements are changing. New demands have emerged such as flexibility, adaptability, accessibility, increased comfort, health and security, energy-efficiency and sustainability. The performance in these issues became a major concern of quality.

Considering the long lifecycle of buildings, we have to take the consequences of every decision we make or we do not make for a century at least. While the built environment represents the largest part of the national asset, improving the quality of it is a main challenge of national economical strategies. Also for the government and for financing institutions, it is very important to know for what (which quality) they give support or credit. Living conditions have wide socio-economic and cultural effects and are a major factor in the general quality of life. Thus, improving housing quality is a stressed public interest.

## 3. THE NEED FOR SUBSIDIZING QUALITY

For guaranteeing quality and the stability of value of new housing, proper financial tools and subsidies are needed. Between the cost of adequate quality and the disposable financial tools often raises a gap, the filling of which is hardly possible without housing subsidies. Without government subsidies, the measure will remain the wallet, which generally has a finite content.

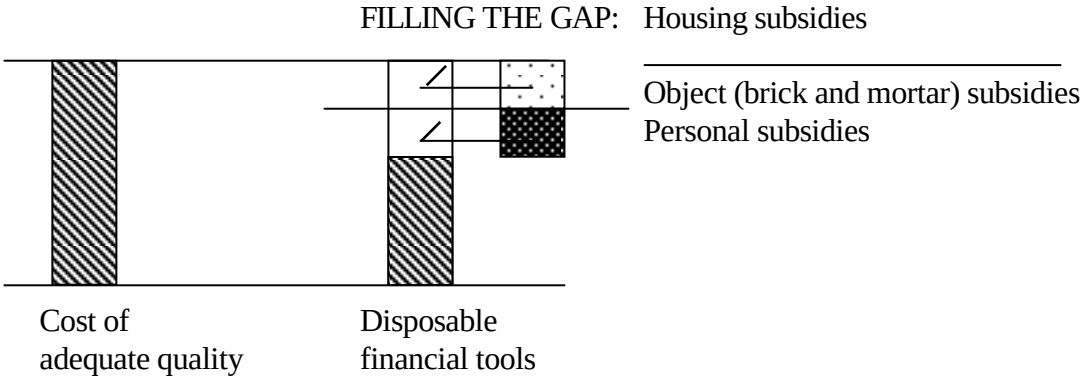


Figure 1 Filling the gap between the cost of adequate quality and disposable financial tools by housing subsidies.

Obviously, for increasing the sustainability in housing and for improving the quality of life, good quality flats should be constructed in the highest possible proportion. In order to guarantee this, one could suggest that:

- housing subsidies should be made dependent upon strict conditions of quality,
- better quality should get more subsidies.

Thus, on the one hand: the general practice of housing subsidies should be based on certain quality requirements. Without fixing up-to-date requirements of basic quality, no housing strategy can be effective. In addition to this, premium requirements of quality could be described that make possible to give higher preference to higher quality (e.g. higher performance in sustainability, ecological and health requirements). In this way, the slogan of "quality and choice" can refer also to choosing quality. On the other hand: special support should be given for those innovative research & development programs and reference projects, which could demonstrate the principles of sustainable housing in larger scale and with model value in these countries.

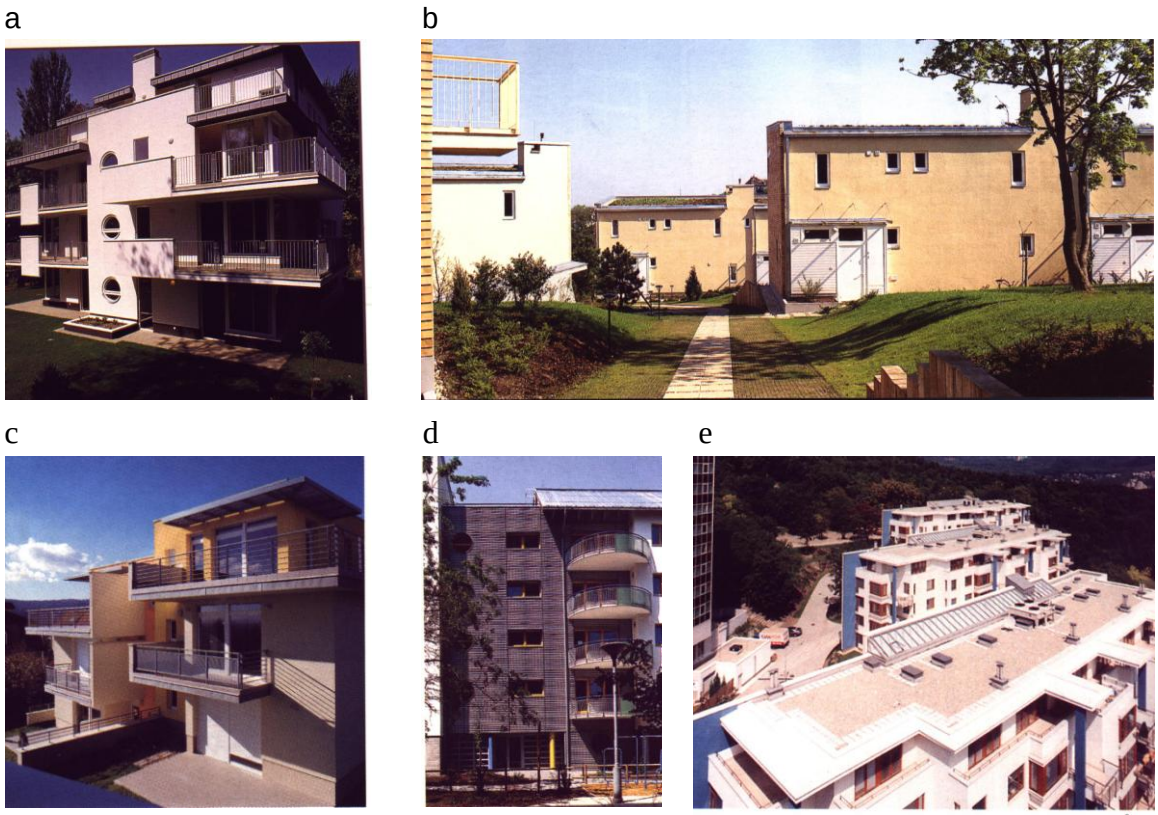


Figure 2 New condominiums and "residential parks" in Buda with high level of quality requirements
a.) Condominium in Pasarét. Architect: Vánzca architects
Source: Tojás 2000. October-November
b.) "Residential Park". Architects: Ferenc Cságoly & Ferenc Keller
Source: Alaprajz 2001/4
c.) Condominium in Rózsadomb. Architect: Lajos Kuknyó
Source: Tojás 2000 December – 2001 January
d.) Condominium in Óbuda. Architect: Árpád Marillai
Source: Alaprajz 2001/4
e.) "Residential Park". Architect: Sándor Dúzs
Source: Alaprajz 2001/7

## 4. A PROPOSED SYSTEM OF QUALITY REQUIREMENTS

In ÉMI Npc a complex system of quality requirements of sustainable housing was proposed and worked out by the author of this paper. This contains 350 requirements or guiding principles divided in 5 main thematic groups and several chapters within each group. The thematic groups and the chapters are as follows:

I. Location, urban life and environment

- Quality of the built environment
- Green areas and natural environment
- Social environment and cultural heritage
- Economical environment, labour market
- Environmental loads and pollution
- Soil and its protection

- Amenities, services, education and leisure
- Accessibility, infrastructure and public utilities

II. Developing the building site
- Site layout
- Landscaping and garden
- Public, semi-public and play areas
- Private and shared open spaces
- Security of site and buildings
- Routes and movement on site
- Car parking

III. Architecture and residential function
- Fitting in context, consistency and harmony
- Forms and proportions
- Orientation, insolation and views
- Size of unit and rooms, number of rooms
- Flat layout: function and flexibility in use
- Layout of rooms: potential in use and furnishing
- Access, movement and storing within the flat
- Privacy and separation, zoned planning
- Safety in use
- Accessibility and adaptability

IV. Sustainability of building structures and technology
- Mechanical resistance and structural stability
- Lifetime and durability
- Safety in case of fire
- Protection against noise and vibration
- Economical issues, cost-effectiveness
- Embodied energy
- Energy balance and heat control of the building envelope
- Indoor air quality, avoiding harmful emissions
- Humidity and moisture control
- Ventilation
- Useful and harmful radiation, control of electrosmog
- Further aspects of health, building-biology and ecology
- Convertibility for future needs
- Demolition, construction waste management and reuse

V. Sustainable use and operation of buildings
- Energy balance, use of renewable energies
- Water management
- Management of household waste
- Maintenance and changing elements
- Post Occupancy Evaluation and user satisfaction

## 5. INDICATORTS OF HOUSING QUALITY

In order to adapt the principles of quality and sustainability to practice, especially regarding the practice of housing subsidies, the next step should be to measure the level of performance in satisfying the addressed requirements.

Several good examples exist for sets or systems of indicators measuring housing quality and sustainability. A Housing Quality Indicators (HQI) system was designed by the Department of the Environment, Transport and the Regions in the UK in order to allow potential and existing building schemes to be evaluated on the bases of quality. Systems of indicators are used in several countries in order to measure the quality and the sustainability of housing or other building and urban projects (e.g.: EcoProp eco-efficiency indicators, Green Building Challenge indicators, REKOS and PIMWAG eco-efficiency indicators for residential buildings in Finland, Hammarby Sjöstad urban project indicators in Sweden, Total Quality Building Assessment System in Austria, etc.). The thematic network of CRISP running under the 5$^{th}$ RTD Framework programme of the EU is dealing with construction and city related sustainability indicators. As a member of this network - and connected to the work of CRISP - ÉMI Npc has also started to work out a national system of indicators for sustainable construction in Hungary. A wide professional working group assists this work. One of the 10 main indicator groups is dealing with housing and housing quality.

Indicators were started to be worked out also in connection to the 350 requirements, the main topics of which were discussed above. Through the indicator examples several priorities in recent housing and urban planning are emphasised such as:

- planned urban development and socially balanced housing environment,
- environmentally flexible infrastructure,
- proper scale,
- ecological and health requirements,
- energy saving, etc.

## 6. EXAMPLE OF INDICATOR AND PRACTICAL USE

As an example, the chapter of "size of unit and rooms, number of rooms" emphasised the aim of proper scale through requirements such as:

- Number of rooms should correspond to household composition (a separate table shows the preferably needed number of rooms for different households)
- By classifying the net floor area of flats in a housing project according to the number of users, floor areas should range between a proposed minimum and an appreciated maximum (as regards subsidies) as an attached table shows it. A better approach towards the middle values is preferred, etc.

For measuring the performance in case of the 2nd requirement, Table 1 demonstrates a potential indicator and its evaluation. In the table the columns represent the number of household members while the rows represent the categories. Each category shows a range of floor areas. Category 1 represents those flats, which have smaller floor area than the proposed minimum. Category 5 represents those flats, which have larger floor area than the appreciated maximum in subsidies. Category 3 represents the "optimal" range. The categories 2 and 4 are transitional. In the evaluation process the proportion of units falling within each categories should be documented.

Table 1 Classifying in categories (1-5) the net floor area ($m^2$) of flats in a housing project according to the number of users.

| N° of users / Category | 1 | 2 | 1 | 4 | 5 | 6 | 7 | 8 | % of units |
|---|---|---|---|---|---|---|---|---|---|
| **1** | <30 | <45 | <55 | <65 | <75 | <85 | <95 | <105 | ( ) |
| **2** | 30-35 | 45-48 | 55-60 | 65-71 | 75-82 | 85-92 | 95-102 | 105-112 | ( ) |
| **3** | **35-40** | **49-51** | **60-65** | **72-78** | **83-91** | **93-101** | **103-111** | **113-121** | ( ) |
| **4** | 40-45 | 52-55 | 65-70 | 79-85 | 92-100 | 102-110 | 112-120 | 122-130 | ( ) |
| **5** | 45< | 55< | 70< | 85< | 100< | 110< | 120< | 130< | ( ) |

**Evaluation:** The proportion of flats meeting the requirement of each category should be multiplied by determined values, for example by the followings: 0 for category 1 and 5; 50 for category 2 and 4 and 100 for category 3. The result will be a percentage showing the performance of this indicator.
For example: category 1: 0% of the flats; category 2: 20% of the flats; category 3: 45% of flats; category 4: 30% of flats; category 5: 5% of flats. The result will be: 0 + 0,2 x 50 + 0,45 x 100 + 0,3 x 50 + 5 x 0 = 70%

By using this indicator, proper scale can be a condition of getting certain (brick and mortar) subsidies in a new housing project. One can also suggest limiting certain personal subsidies or housing allowances for an appreciated maximum floor area according to the number of users (e.g. 45 $m^2$ for 1 person, 55 $m^2$ for 2, 70 $m^2$ for 3, 85 $m^2$ for 4 persons, etc.) It could be also prescribed, that above this subsidized part, a certain percentage of floor area is permitted, however this part will not get subsidies (thus, only a proportional part of the full potential subsidy will be available). In case of even larger flats no subsidy would be available. As another example, if the criteria of affordable housing is recorded (one of which can be the proper scale), higher subsidy level could be proposed for a new project containing affordable housing units above a fixed proportion. This tool -when applied in the practice of subsidies - can assist the aim of providing proper scale and also the aim of creating socially balanced housing environments.

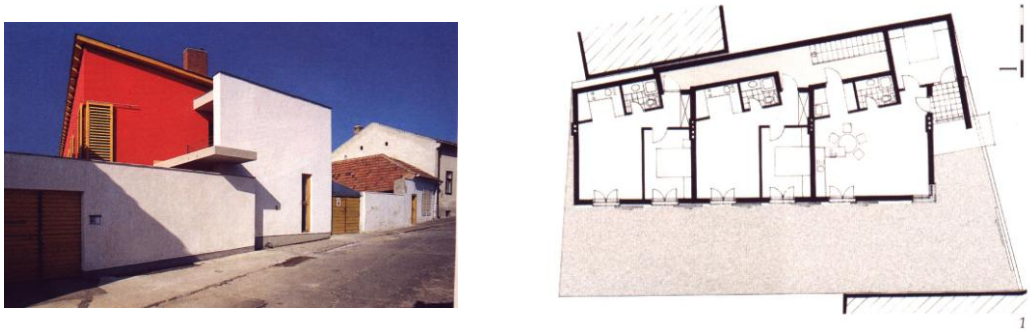

Figure 3 Studio flats for young families of university students, Pécs. Architect: Margit Pelényi. The flats were designed with proper scale for the users' needs and the building fits with proper scale and style to the Mediterranean character of the provincial urban fabric of the city. Source: Alaprajz 2001/6

## 7. CONCLUSION

A complex system of principles or requirements and adequate indicators of housing quality and sustainability can be a useful tool for architects and planners, for investors and developers, for financial institutions, for governmental bodies and local authorities. By using this system, quality aspects could be integrated in housing policy and in the system of housing subsidies. This can assist EU applicant countries to fulfil the EU standards in the field.