
Design Flexibility as one of The Most Important Standards for Economic Housing^{*}

Eng. Waad Tannous^{}**

Dr. Ziad Mouhanna^{*}**

Dr. Oqba Fakoush^{**}**

Abstract

Constant changes occur to the family requirements of housing with the flowing of time, and these changes are due to the number of its members, their needs , the standard of living the economic conditions , or as a result of increasing technical developments. This implies facing house requirements and applying changes in the number of the house rooms, or the functions of these rooms. So the family either tends to change its house to fit its needs, and that exhausts it socially and financially. They made adapt their house with the family constant needs, and here comes the importance of achieving flexibility as the best economic solution that reduces the value of the house, of it, by providing the efficiency of the best use of the whole spaces. In addition, the role of flexibility is to respond to the social stability of families by the best use of the whole time age of their houses.

This research handles the concept of design flexibility as one of the most economic housing standards in the thesis of the most important architects , and goes through steps of applying it in the house functionally and structurally in the designing phase by effective interaction between the designer and the user side by side.

Keywords: Flexibility, Design, Housing, Building, House, Unit, Space, Economic, Cost, Forming, Qualification, Sustainability.

For the paper in Arabic see pages (619-638).

^{*}This Research was done by student Eng. Waad Tannous under supervision of Dr. Ziad Mouhanna and Dr. Oqba Fakoush

^{**} Architectural Designing Department, Architectural Engineering Faculty, Damascus University.

^{***}Prof. Head of Architectural Designing Department, Architectural Engineering Faculty, Damascus University.

^{****} Prof. Architectural Designing Department, Architectural Engineering Faculty, Damascus University.

References:

1. AlBoujari, Firas, (Dec., 2008) "Flexibility in Architecture Design- Case Study: elementary Schools in Syrian Arab Republic", Dep. Of Architectural Design, Master Thesis, Faculty of Architecture, Damascus University, Syria. pp. 126.
2. General Establishment of Housing, (2011).
3. Hassan, N. M., (April, 2001) "Theory of Architecture -2", Author, Assiut, Arab Republic of Egypt. pp. 350.
4. Khuzam, Houida, (2009) "Feasibility Study and Fields of Limited Area House in Syria", Dep. Of Architectural Design, Doctorate Thesis, Faculty of Architecture, AlBaath University, Homs, Syria. pp. 307.
5. Rafat, Ali, (1996) "Trilogy of Architectural Creativity -1- Environment and Space", Al-Shourouk Press, Cairo, Arab Republic of Egypt. pp. 430.
6. Afifi, H. M. N., (2004) "Flexibility as Main Factor in Arab House Design", Housing Seminar II (Affordable Housing), High Commission for the Development of AlRiyadh, KSA.
- 7.
8. Fathy, Hasan, (1969) "Architecture for the Poor: An Experiment in Rural Egypt", Dar Al-Ain Publishing and Distribution, Forth Edition, Cairo, Arab Republic of Egypt. pp.209.
9. prince Abdullah Institute for Consulting and Research Institute (PARCI), (2005) "Affordable Housing Directory", Housing Seminar II, High Commission for the Development of AlRiyadh, KSA. pp. 144.
10. Al-Bostan, Duygu, (2009) "Flexibility in multi-residential housing projects: three innovative cases in Turkey", The Graduate School of Natural and Applied Sciences, Master of Architecture, Middle East Technical University, Turkey, pp. 134.
11. Cuperus, Ype, (2001) "An Introduction To Open Building", Vol 18, No. 1, pp. 10. p 3,4.
12. Encyclopedia of Britannica (1996).
13. Friedman, A, (1993) "Decision- Making Process for Choice of Flexible Internal Partition Options in Multi-Unit Housing Using Decision Theory Techniques", in Design and Decision Support Systems in Architecture, Kluwer Academic Publishers, Dordrecht, The Netherlands, pp. 179-188.
14. [Gausa](#), Manuel, (1998) "Housing: new alternatives - new systems", First edition, Birkhausers User Publishers, Basel, Boston, U.S.A., 270 pages.
15. Habraken, N. J. (2008): "Design For Flexibility", Building Research & Information Press, Vol (3). pp. 290-296.
16. Oxford English Dictionary Online, 2011.
17. Prins, M., (1992) "The Management of Building Flexibility in The Design Process: a design Decision Support Model for Optimization of Building Flexibility in Relation to Life Cycle Costs in: Nicholson, M.P., Architectural Management, 1st Edition, E & FN Spon, London.
18. Sarri, Arto- Heikkila, pekka, (2008) "Building Flexibility Management", The Open Construction and Building Technology Journal, Vol 2, pp. 239-242.
19. Schneider, T., & Till, J. (2005): "Flexible Housing: Opportunities And Limits", Arq., vol 9(2), pp. 157-166.
20. Till, J., & Schneider, t. (2005) "Flexible Housing: The Means To The End" Arq , vol 9, pp. 287-296.
21. Woodstock, Robert V. (May 2011) "The Five Points of a New Architecture in Earthquake Zones" Global Earthquake Model, Programme Workshop, Caribbean Regional, pp. 22.