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( [1; 11]; [19]; [14]. [15]; [16]; [9]; [10]; [8]; [5]; [4]. )

**MOBILE HOUSING AS A FUNCTIONAL-TYOLOGICAL VARIETY OF THE INDUSTRY OF MODERN CONSTRUCTION**

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**Summary. Problem statement.** Current socio-demographic conditions in Ukraine and the level of housing of different types and quality suggest the possibility of active development mobile home construction. Practical advantages of mobile homes in various regions of the world reflected in the popularity of their use, especially as a temporary, recreational, holiday and tourist accommodation. The use of mobile housing in Ukraine currently is limited functional-typological composition. **Aim.** Identify the features of the design and construction of mobile homes on the basis of studying the world and domestic experience based integrated assessment formative factors (environmental and fire safety, energy efficiency, reliability and sustainability, etc.). **Analyzing of the resent research.** In research on mobility and transform element residential buildings addressed such issues: the experience of adaptation of housing to changes in the life of their inhabitants in the form of transformation of the internal space and its versatility [1; 11]; the methodology and design of constructions differing movable, collapsible or foldable parts and features of formation of mobile home recreational purpose[19]; the evolution of human dwellings and projected a futuristic look at the structure of the living environment [14]. In the scientific development of modern authors on architectural topics most relevant topics related to energy issues: a study of the historical background of the development of energy efficient housing, development of the basic requirements and solutions, their formation, and the creation of engineering and efficient method of designing low-rise architecture [15]; an analysis of the use of alternative energy sources, identify the main ways of saving energy and the development of architecture energy-saving residential buildings of low and medium-rise [16]; the development of an integrated approach to the ecological – economic substantiation of creation of energy-efficient residential buildings using alternative energy sources [9]; the urgency of energy conservation in construction in the context of energy conservation for future generations, the use of renewable energy sources (RES) and the creation of energy efficient residential buildings with the use of "smart" building in the form of Autonomous control systems [10]; the use of renewable energy sources and secondary energy resources and construction of experimental houses [8]; the creation and formation energy active the property on marginal or degraded due to anthropogenic factors territories [5]; the establishment of new design standards of the dwelling based on the real experience of research, design, construction and operation of energy efficient engineering systems [4]. It seems appropriate to study the problem of mobile and modular housing in the context of the requirements of energy saving and energy efficiency. **Conclude.** A comparative analysis of the specificity of traditional and alternative (mobile) housing allowed us to identify the characteristic functional - typological features of mobile construction affecting its design, manufacture, erection and operation. Along with lighting experience in the use of mobile housing in modern conditions of Ukraine, the alternative variant for the organization of summer holidays for children from mobile homes-modulus.

**Key words:** *obile housing, mobile home, container type, modular mobile housing, transformation, adaptation, sustainability, renewable energy, energy saving house, smart house*

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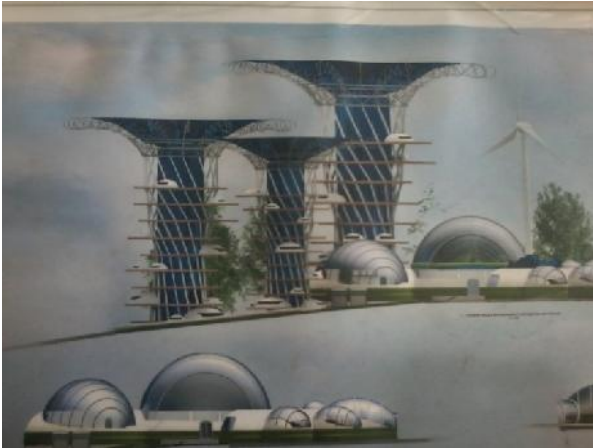
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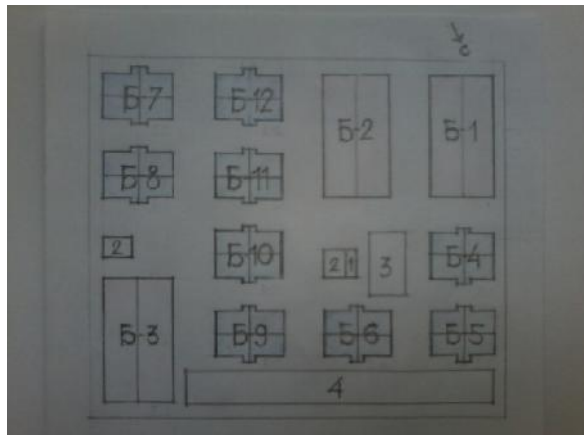
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1. : 18.00.02 / ; , 2009. – : <http://www.dissercat.com/content/printsiy-formirovaniya-arkhitektury-adaptiruemogo-zhilishcha>.
2. / . – : , 2009. – 319 .
3. . 74% // . – 2014. – 16 . – : [www.vestifinance.ru/articles/42870](http://www.vestifinance.ru/articles/42870).
4. // . – 2007. – 1. – : [http://esco-ecosys.narod.ru/2007\\_1/art41.htm](http://esco-ecosys.narod.ru/2007_1/art41.htm).
5. / . . . . // . – 2012. – 4. – . 226-239.
6. // . – 2010. – 8. – . 76-79.
7. / . , . . – : , 2007. – 663 .
8. . – 2011. – 8. – . 18-21.
9. . . . : . 08.00.05 / . – , 2006. – 25 .
10. / . . // . – 2013. – 7. – . 18-20.
11. 18.00.02 / ; . . . . , 2005. – 66 .
12. . . . / . // . – 2014. – 9 . – : <http://a.gorod.dp.ua/>.
13. Optima house – // Schneider electric Optima house. – 2014. – 19 . – : <http://www.schneider-electric.ua/documents/pdf/catalogues/schneider-electric-optimahouse-web-se.pdf>.
14. . . . ) / . . // . , . . . . : , 2012. – : [www.culturalnet.ru/mail.congress-person/635](http://www.culturalnet.ru/mail.congress-person/635).
15. . . . : . 18.00.02 / i ; . . . . – , 2014. – 20 .
16. . . . : . 18.00.02 / ; . . . . , 2009. – : [http://www.dissforall.com/\\_catalog/t21/\\_science/18/9192382.html](http://www.dissforall.com/_catalog/t21/_science/18/9192382.html).
17. / . . . . , . . . . , . . . . . – : , 2005. – 561 .
18. . . . – / . // . . – 2008. – 8 . – : <http://mag.avtotravel.com/articles>.

19. . . . . ( )  
: . . . . . : . 18.00.02 / ; .  
. . . . . , 1994. – : [http://www.dissers.info/abstract\\_414869.html](http://www.dissers.info/abstract_414869.html)
20. : 2 . / . . . . . – : . . . . . , 1963-1964.
21. // . . . . . –  
2015. – 10 . – : <http://dnepr.info/news/na-yumz-prezentovali-obeshhannye-mobilnye-kazarmy>.
22. // . . . . . – : <http://www.madenimura.kz/ru/culture-legacy/books/book/kazahstan-nacionalnaa-enciklopedia-5-tom?category=all&page=484>

## REFERENCES

- Anisimov L.Yu. *Printsipy formirovaniya arkhitektury adaptiruemogo zhilisha. Avtoreferat Diss.* [Principles of formation of architecture adaptable dwellings. Author's abstract]. Moskov. arkhitektur. in-t. Moscow, 2009. Available at: <http://www.dissercat.com/content/printsipy-formirovaniya-arkhitektury-adaptiruemogo-zhilishcha>. (in Russian).
- Barrell R. *Vse voyny drevnostey* [All wars of antiquity]. Moskov: Eksmo, 2009, 319 p. (in Russian).
- Germaniya. 74% energii ot vozobnovlyaemykh istochnikov* [Germany. 74% of energy from renewable sources]. *Vesti, Ekonomika, 2014*. Available at: [www.vestifinance.ru/articles/42870](http://www.vestifinance.ru/articles/42870). (in Russian).
- Gershkovich V.F. *Energoberegayushchie sistemy zhilykh zdaniy.* [Energy-saving system of residential buildings]. *ESKO*, 2007, no. 1. Available at: [http://esco-ecosys.narod.ru/2007\\_1/art41.htm](http://esco-ecosys.narod.ru/2007_1/art41.htm). (in Russian).
- Yemets N.A., Derevianko V. and Bogatyriov Yu.A. *Stvorennia formuvannia energoaktyvnoi agrosadyby tekhnogenogo parku na porushenykh zemliakh.* [Creation and formation of energy active agro homestead of techno park on damaged lands]. *Aktualn problemy ekonom ky* [Actual problem of economy]. 2012, no. 4, pp. 226-239. (in Ukrainian).
- Zelenyy dom v Izraile* [Ecological house in Israel]. *Energoberezhenie* [Energy saving]. 2010, no. 8, pp. 76-79. (in Russian).
- Kinder G., Khlgeman V. and Manfred G. *Vsesvtnia istoria* [The world history]. Kyiv: Znannia-Pres, 2007, 663 p. (in Ukrainian).
- Levkin S.I. *Gradostroitel'naya politika Moskvy v oblasti energoberezheniya* [Town-planning policy of Moscow in the field of energy saving]. *Energoberezhenie* [Energy saving]. 2011, no. 8, pp. 18-21. (in Russian).
- Murych A.V. *Ekologo-ekonomicheskie problemy sozdaniya energoberegayushchikh zhylykh zdaniy. Avtoreferat Diss.* [Ecological and economic problems of the creation of energy-saving residential buildings. Author's abstract]. Moscow, 2006, 25 p. (in Russian).
- Parshukov V.I. *Umnoe energoberegayushchee energoeffektivnoe ekologicheskii chistoe domostroenie* [Smart energy-saving energy-efficient ecologically pure house-building]. *Energoberezhenie* [Energy saving]. 2013, no. 7, pp. 18-20. (in Russian).
- Pomorov S.B. *Vtoroe zhilische gorozhan kompensatsionnogo tipa. Avtoreferat Diss.* [The second dwelling of residents of compensatory type. Author's abstract]. Moskov. arkhitektur. in-t. Moscow, 2005, 66 p. (in Russian).
- Popova V.V. *V Dnepropetrovske stroyat doma dlya pereselentsev* [Houses for settlers are built in Dnepropetrovsk]. *Novosti goroda i regiona* [News of a city and a region]. 2014. Available at: <http://a.gorod.dp.ua/>. (in Russian).
- Proekt Optima house pervy seriyny proekt energoeffektivnogo zagorodnogo doma* [Project of Optima house - the first serial project of energy efficiency of cottage]. Schneider electric Optima house. 2014. Available at: <http://www.schneider-electric.ua/documents/pdf/catalogues/schneider-electric-optimahouse-web-se.pdf>. (in Russian).
- Prozerskiy V.V. *Evolutsiya mesta zhizneobitaniya cheloveka v tsivilizovannom protsesse (ot arkhaiskoy modeli goroda-khrama-doma k virtual'noy)* [The evolution of human habitation place of life in a civilized process (from the archaic model of the city-temple-house to virtual)]. *Sovremennaya teoriya, filosofiya, metodologiya issledovaniy kul'tury* [The modern theory, philosophy, methodology of cultural studies]. Sankt-Peterburg: Eydos, 2012. Available at: [www.culturalnet.ru/mail.congress-person/635](http://www.culturalnet.ru/mail.congress-person/635). (in Russian).
- Sardykova A.O. *Pryntsypy formuvannia arkhitektury malopoverkhovogo energoefektyvnogo zhytla. Avtoreferat Diss.* [The principles of formation of architecture of energy efficient low-rise housing. Author's abstract]. Khark v. nats. un-t bud-va ta arkh tekturi. Khark v, 2014, 20 p. (in Ukrainian).
- Smirnova S.N. *Printsipy formirovaniya arkhitekturnykh resheniy energoberegayushchikh zhylykh zdaniy Avtoreferat Diss.* [Principles of formation of architectural solutions of energy-efficient residential buildings. Author's abstract]. Nizhegor. gos. arkhitektur.-stroit. un-t. Nizhniy Novgorod, 2009. Available at: [http://www.dissforall.com/\\_catalog/t21/\\_science/18/9192382.html](http://www.dissforall.com/_catalog/t21/_science/18/9192382.html). (in Russian).

17. Asaul A.N., Kazakov Yu.N., Pasyada N.I. and Denisova I.V. *Teoriya i praktika maloetazhnogo zhilishchnogo stroitel'stva v Rossii* [Theory and practice of low-rise housing construction in Russia]. Sankt-Peterburg: Gumanistika, 2005, 561 p. (in Russian).
18. Chervyakova N. *Mobil'nye doma – al'ternativnoe reshenie zhilishchnogo voprosa* [Moving houses - an alternative solution to the housing problem]. *Avtokemper*. 2008. Available at: <http://mag.avtotravel.com/articles>. (in Russian).
19. Khvyliya I.K. *Osobennosti formirovaniya mobil'nogo rekreatsionnogo zhilishcha (MRZH) dlya usloviy Ukrainy. Avtoreferat Diss.* [Peculiarities of formation of moving recreational houses (MRH) for the conditions of Ukraine. Author's abstract]. *Moskov. arkhitektur. in-t.* Moskow, 1994. Available at: [http://www.dissers.info/abstract\\_414869.html](http://www.dissers.info/abstract_414869.html). (in Russian).
20. Vvedenskiy B.A. ed. *Entsiklopedicheskiy slovar'* [Encyclopedic dictionary]. Moskow: Sovet. entsikl., 1963-1964. (in Russian).
21. *YuMZ prezentoval svoyu novuyu produktsiyu dlya ukrainskikh voennykh* [YuMBP has presented its new products for Ukrainian military]. *Sayt Dnepropetrovska. Novosti* [Dnepropetrovsk site. News]. 2015. Available at: <http://dnepr.info/news/na-yumz-prezentovali-obeshhannye-mobilnye-kazarmy>. (in Russian).
22. *Yurta* [Yurt]. *Kul'turnoe nasledie. Natsional'ny proekt* [Cultural heritage. National project]. Available at: <http://www.madenimura.kz/ru/culture-legacy/books/book/kazahstan-nacionalnaa-enciklopedia-5-tom?category=all> (in Russian).

02.09.2015 . : - ,, . . .

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