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House design in the 21th century: ecological design: case study of a straw bale house in Slovenia
ArchTheo 12 – Theory of architecture conference
House & Home from a theoretical perspective
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Prispevek je bil predstavljen na 12i mednarodni konferenci ARCHTHEO 12, ki je potekala v Istanbulu od 31.10.-3. 11. 2012. Koordinator konference Efe Duyan, glavni svetovalec pa Asst. Prof. Dr. Elvan Gökçe Erkmen. Prispevek je bil recenziran ter pregledan s strani znanstvenega odbora konference s člani:
Vsi prispevki so objavljeni v zborniku z naslovom House and Home – from a theoretical perspective, in sicer v dveh delih, kamor je vključena tudi spodaj predstavljena študija.

Znanstveni odbor konference je bil sestavljen iz 7 profesorjev iz različnih fakultet:

- Prof. dr. Edward Casey
- Prof. dr. Aylâ Fatma Antel
- Prof. Bart Lootsma
- Assoc. prof. dr. Aydan Balamir
- Assoc. prof. dr. Bülent Tanju
- Assoc. prof. dr. Murat Cemal Yalçintan
- Asst. prof. dr. Elvan Gökçe Erkmen
- Aykut Köksal
- Erdal Özyurt

Use of conventional building materials and techniques still dominates despite of global effort for more environmental friendly design. A number of projects aim at overcoming the aesthetic or structural boundaries, in each case aspect of energy consumption is neglected.
To achieve a result of ecological design the primary task of a design is a selection of a main building material with low impact on the environment and people. The use of renewable resources like organic material such as straw is significant contribution to reducing greenhouse gas emissions. From ecological point of view there are many important values calculated within environmental impact and defined such as primary energy content, global warming potential and acidification potential.
Building use and its maintenance is the longest part of the whole building life cycle. The life cycle can be divided into three phases, pre-construction, use and after use. Contemporary practice dictates guidelines for low energy consumption especially in the phase of use, although basic building material has the major influence on total energy balance. In the case of straw bale building there are many positive characteristics compared to conventional construction, such as availability of resources, sufficient isolation properties, negative embodied energy, local availability, etc.
The use of local materials was typical choice in the past, whereas nowadays residential buildings are built up with conventional materials such as brick and concrete. Designers nowadays do not give much of attention when it comes to choosing basic building material. Usually the material is chosen according to the investor's financial capacity. Investors rarely demand unconventional materials, such as straw. This type of material often raises concerns about the performance, and there are also few investors who categorically reject it. The advantage of this material is held in the accumulation of CO2 in the straw, therefore the final energy balance is characteristically lower.
Straw has a long history in architecture. For the longest period of time it was used as a layer of thatch or a binder in a clay building techniques. At the beginning of the 20th century, simultaneously with invention of steam machine for making straw bales, straw bale building technique was developed and mostly used in combination with timber and clay. Basic properties of straw are the isolation properties which are quite suitable, but the greatest advantage of straw is its organic structure which is completely recyclable and it is locally available practically worldwide.
Straw bale building is suitable not only for rural area. Many already built buildings prove that the straw and specific building techniques can be applied in urban area as well. The design of the presented single-family house is orientated environmental friendly. Currently built project in Radomlje (Slovenia) is based on the idea of low carbon footprint. Consequently the choice of natural materials was obvious. Structure of the house is timber frame filled with straw bales and rendered on both sides of the wall with clay. Exterior wall is additionally protected with a layer of lime wash. Another step in environmental design is orientation of the house with minimum glassed area on the north side and largest glassed area towards the south which present low heat loses.

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Borut Juvanec
Architectural theory : order in reality
Symmetry: Art and Science
International Society for the Indisciplinary Study of Symmmetry ISIS
Folk Architecture – Vernacular Architecture
8. – 10. junij 2012, Budapest - Veszprém - Szentendre, Madžarska

Mednarodna znanstvena konferenca Symmetry of Forms and Structures se je odvijala na temo prostorskih struktur in harmonije. Symmetry konferenca združuje znanstvenike z različnih področij, kjer se pojavlja simetrija ali asimetrija. Na teh srečanjih se srečujemo matemetiki, industrijski oblikovalci, arhitekti, fiziki, gradbeniki, urbanisti, arheologi, ki se praktično ukvarjamo na realnih primerih in razvijamo teoretične modele in metode dela. Namen konference je v povezovanju idej, vedenja in utrjevanju misli o ravnovesju.