

the Faculty of Architecture, we use the Mental Rotation Test which is one of generally recognized tests for checking spatial ability. The conditions of the test have stayed the same throughout the years (time, exam papers etc.) which enables us to objectively compare different generations.

Considering the structure of the test, its primary goal is to check the capability of mental rotation, which is an integral part of spatial ability. More than 2000 ($n=2094$) students have performed the test up to now. Besides basic data about generations, for the past three years we have also been comparing the differences in terms of left-handedness and right-handedness. The results show no statistically provable differences. But it is true that the tested population of left-handed students is, despite the above, relatively small ($n=66$) even though it proportionately does not deviate from the share of the entire population. An interesting phenomenon is also the poorer results of each third generation, which has been appearing throughout the years. This difference has been statistically proven for 2009 and 2012, while the difference for 2003 and 2006 has not yet been statistically proven.

Processing of results with the help of statistical software makes it possible to check various hypotheses from the area of spatial ability and provides interesting conclusions, presented in the article. A large digital database also makes it possible to evaluate the test and the students' approach towards solving it. This opens up new possibilities in the area of comprehensively treating spatial ability and, at the same time poses new questions and dilemmas. One such dilemma is the existing scoring system.

Results obtained in the joint project of the Faculty of Architecture of the University for Technology and Economics in Budapest, Ybl Miklos University for Architecture and Civil Engineering of the Szent Istvan University of Budapest and the Faculty of Architecture of the University of Ljubljana namely show that the existing scoring system is not the most appropriate since it does not provide the envisaged normal distribution of the sample. Based on obtained data, a new scoring system has been proposed which enables a normal sample distribution.

KUŠAR, Domen, VOLGEMUT Mateja: Thirteen Years of MRT – Results, Options and Dilemmas. V: SCHROCKER, Hans Peter, HUSTY Manfred. The 16th International Conference on Geometry and Graphics, Innsbruck, August 4-8, 2014. Program and Abstracts. Innsbruck, University of Innsbruck, 2014, str 269.

Martina Zbašnik-Senegačnik
Boris Azinović
SEISMIC SAFETY OF PASSIVE HOUSES FOUNDED ON THERMAL INSULATION
17th International Passive House Conference 2013
Passive House Institute
Frankfurt (Main), Nemčija, 19. - 20.4.2013
http://passiv.de/former_conferences/siebzehnte/Englisch/index_eng.html

The inserting of soft thermal insulation (TI) layers under the foundation of a building increases its period of vibration, what could result (in the case of very stiff structures) in larger earthquake forces acting on the building. The presented paper deals with the seismic response of passive buildings founded

on TI layer made of extruded polystyrene (XPS). In order to obtain the material characteristics of XPS thermal insulation boards, the axial compressive and shear tests were carried out. The obtained data were then used in a numerical parametric study. The research has shown that in general the seismic safety of passive houses with the height up to 2 or 3 stories is not of critical concern. For higher (or slenderer) buildings, however, the negative effects of TI layer under foundation slab are more important and can lead to overstress in the TI layer itself, or to the increase of stresses and top displacement of the building.

KOREN, David, KILAR, Vojko, ZBAŠNIK-SENEGAČNIK, Martina. Seismic safety of passive houses founded on thermal insulation. V: 17th International Passive House Conference 2013, 19-20 April, Frankfurt am Main. FEIST, Wolfgang (ur.). Conference proceedings. Darmstadt: Passive House Institute, 2013, str. 573-574, ilustr. [COBISS.SI-ID 2842244]

Boris Azinović
SEISMIC SAFETY OF LOW-ENERGY BUILDINGS
Erasmus izmenjava za pedagoge in zaposlene na FA
Escola Tècnica Superior d'Arquitectura de Barcelona
Barcelona, Spain, 5. - 10.10.2013
<http://www.etsab.upc.edu/web/frame.htm?i=2&m=inicio&c=inicio>

Predavanje je bilo osredotočeno na predstavitev koncepta energijsko učinkovitih stavb, med katere štejemo tudi pasivne hiše. V obravnavani predstavitvi je bil največji poudarek posvečen zahtevi o sklenjenemu toplotnoizolacijskemu ovoju, ki je ena izmed zahtev takšnih stavb. V osrednjem delu predavanja pa je bil predstavljen vidik njihove potresne varnosti. Izpostavljena je bila problematika temeljenja na toplotni izolaciji, ki je eden izmed detajlov z največjim vplivom na potresni odziv. Podani so bili kratki zaključki in priporočila za projektiranje energijsko zelo učinkovitih stavb na potresno ogroženih območjih.

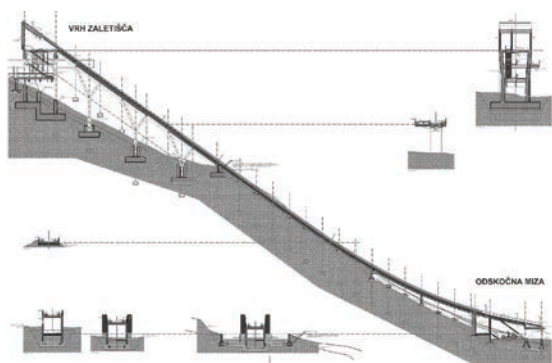
AZINOVIĆ, Boris. Seismic safety of low-energy buildings : [predavanje na Escola Tècnica Superior d'Arquitectura de Barcelona (ETSAB), Španija, 8. 11. 2013]. 2013. [COBISS.SI-ID 2933636]

Vojko Kilar
Boris Azinović
GRADBENA KONSTRUKCIJA NOVE LETALNICE
HS225 V PLANICI
35. zborovanje gradbenih konstruktorjev Slovenije
Slovensko društvo gradbenih konstruktorjev
UL, Fakulteta za gradbeništvo in geodezijo
Ljubljana, Slovenija, 22.11.2013
<http://www.sdggk.si/index.php>

V prispevku je opisana načrtovana gradnja nove letalnice bratov Gorišek v okviru novega Nordijskega centra v Planici, ki vključuje odstranitev obstoječih objektov, poglobitev in razširitev obstoječega doskočišča in izgradnjo novega zaletišča, ki poteka kot mostna konstrukcija na treh parih Y stebrov visoko nad obstoječim terenom. V obravnavani 1D fazi se gradnja še

dva nova RTV stolpa (mali in veliki), trenerska tribuna, vetrna zaščita, ogrevalni objekt na vrhu zaletišča, konstrukcija za TV zaslon ter rekonstrukcija stavbe Kavka in sanacija obstoječega sodniškega stolpa. Prispevek prikazuje lokacije načrtovanih novih objektov in kratke opise konstrukcijsko najbolj zanimivih detajlov.

LOPATIČ, Jože (ur.), MARKELJ, Viktor (ur.), SAJE, Franc (ur.). Zbornik 35. zborovanja gradbenih konstruktorjev Slovenije, Ljubljana, Fakulteta za gradbeništvo in geodezijo, 22. november, 2013. Ljubljana: Slovensko društvo gradbenih konstruktorjev, 2013, str. 79-88, ilustr. [COBISS.SI-ID 2947460]



Zaletišče HS225 – vzdolžni in prečni prerezi.

Larisa Brojan

CREATIVITY, ALTERNATIVE WAYS OF DESIGNING AND CONSTRUCTING: STRAW BALE WALL DESIGN ALTERNATIVES

ArchTheo 13-THEORY OF ARCHITECTURE CONFERENCE
Istanbul, Turčija, 4. - 5.12.2013

Mednarodna konferenca je organizirana v okviru združenja DAKAM (Eastern Mediterranean Academic Research Center) in Mimar Sinan Fine Arts University. Na konferenci je bilo veliko predstavitev s področja arhitekture, teorije načrtovanja in snovanja prostorskega oblikovanja. Poleg javnih predstavitev prispevkov so bile organizirane tudi razprave. S kolegi smo sodelovali pri tematiki socialne vloge arhitekture in vplivom arhitekture na bivanjske navade ljudi. Vsi prispevki so objavljeni v zborniku z naslovom 'Sources of creativity, autonomy & function', kamor je vključena tudi spodaj predstavljena študija. Koordinator konferenca je bil Efe Duyan.

This paper focuses on the straw bale wall functionality. It is evident from analyses of straw bale houses, how diverse the design of straw bale building can be. Straw bale building has many advantages especially in sense of ecological aspect which is many times also the main reason to build with straw bales.

Floor plan design doesn't need any special treatment; there are many possibilities especially when straw bales are used as an infill which is in most projects. But when it comes to building, at first special attention needs to be devoted to bales stacking, bales alignment and finally, the crucial segment of plastering. Since most of builders apply the plaster by hand, extreme precision is needed especially when flat surface is needed.

When bales are stacked, alignment is done by pushing and hammering the bales into right position. Next step is straw trimming which makes the wall smooth. Well aligned wall insures the static safety but also many builders decide to increase the safety with mesh which also makes the plaster application easier. Plaster can be applied in case of straw building by hand or by machine. Manual, hand application is most common way though. Functionality is supplemented with appropriate furniture. In case of straw bale walls special attention needs to be devoted to pre-determination of hanging furniture like cupboards or just wall decoration as pictures or other accessories. Since the plaster itself is not thick enough to hold all the weight and straw itself is to 'soft' to hold added item additional substructure is needed. Final image of straw bale plastered wall depends on application precision. Roughly, surface finish can be divided into three groups:

1. Organically shaped surface
2. Semi leveled surface
3. Completely leveled surface

Based on the diversity of design that straw bale building offers many requests can be realized. Straw bale building itself does not represent any functional disadvantages if details are carefully planned and delivered.

BROJAN, Larisa. Straw bale wall design alternatives. V: ÇATAK, Neslihan (ur.), DUYAN, Efe (ur.). ARCHTHEO '13: conference proceedings, December 4-6 2013, Mimar Sinan Fine Arts University, [Istanbul], Creativity, autonomy, function in architecture. Istanbul: Mimar Sinan Güzel Sanatlar Üniversitesi Yayınları, cop. 2013, str. 43-50, ilustr. [COBISS.SI-ID 2956164].

Larisa Brojan

ADVANTAGES AND DISADVANTAGES OF STRAW BALE AS BUILDING MATERIAL

The Constructed Environment

Lizbona, Portugalska, 4. – 5.10.2013

Mednarodna konferenca je organizirana v okviru združenja Constructed Environment. Tematika konferenca je bila odnos človeka do naravnega in grajenega okolja. Udeleženci konferenca so bili s celega sveta (ZDA, Evropa, Azija, Južna Amerika itn.). Poleg javnih predstavitev prispevkov so bile organizirane tudi razprave na vodilno temo.

Paper is focused on general properties of straw bale as a building material which is proven by numerous buildings to be an appropriate material choice in several aspects. The research is divided on to two parts in which advantages and disadvantages of such a building are discussed.

The building techniques are relatively easy to learn and performance of straw bale structures has a high value in terms of several aspects as long as the general guidance is considered. The primary benefit of straw bale as building material is its low embodied energy. Therefor the impact on the environment is low which is important since the awareness of building negative impacts on the environment. Above all, the isolation properties are on a high level as thermal as well as sound isolation.