Spolia revisited and extended: The potential for contemporary architecture

In the fields of archaeology, art history and history, spolia have traditionally been studied as phenomena of the past. Today, the reuse of salvaged construction components and materials is primarily justified by its economic and ecological benefits, while its architectural and experiential qualities are much less discussed, if at all. Therefore, this article has two focuses, one more conceptual, and the other, more practical. Firstly, the article suggests extending the concept of spolia to contemporary architecture and discusses the usefulness of the concept in evaluating experiential values in contemporary constructions that make use of reclaimed parts. Secondly, it evaluates the potential of spoliation as a modern design tool in search of a more complex and historicity-based architectural expression. This potential is examined by defining the requirements for the extended concept, and through analyzing examples of contemporary design. Although the main focus of this article is on contemporary architecture based on old building components, the topic also has obvious implications for heritage management.
Scopus rating (2007): SJR 0.677 SNIP 1.938
Scopus rating (2006): SJR 0.558 SNIP 1.142
Scopus rating (2005): SJR 0.282 SNIP 0.474
Scopus rating (2004): SJR 0.15 SNIP 0.382
Scopus rating (2003): SJR 0.208 SNIP 0.536
Scopus rating (2002): SJR 0.183 SNIP 0.767
Scopus rating (2001): SJR 0.29 SNIP 0.708
Scopus rating (2000): SJR 0.272 SNIP 0.647
Scopus rating (1999): SJR 0.493 SNIP 1.124
Original language: English
DOI:
10.1177/1359183517742946
Additional files:
kalakoski&huuhka_spolia_author_accepted_manuscript
Research output: Scientific - peer-review › Article

Arkkitehtuurin ja tilasuunnitelun vaikutus rakennuksen energiatehokkuuteen

General information
State: Published
Ministry of Education publication type: D3 Professional conference proceedings
Organisations: Architecture, Research group: ASUTUT, Tampere University of Applied Sciences (TAMK)
Authors: Moisio, M., Lindberg, T., Kaasalainen, T., Mäkinen, A.
Number of pages: 6
Pages: 331–336
Publication date: 2017

Host publication information
Title of host publication: Rakennusfysiikka 2017 : Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut, 24-26.10.2017, Tampere
Place of publication: Tampere
Publisher: Tampereen teknillinen yliopisto, Rakennustekniikka, Rakennusfysiikka
Editors: Vinha, J., Kivioja, H.
Links:
Research output: Professional › Conference contribution

Katsaus vähähiilisyysten edistämiseen

General information
State: Published
Ministry of Education publication type: D4 Published development or research report or study
Organisations: Civil Engineering, Architecture
Authors: Sorri, J., Edelman, H.
Number of pages: 56
Publication date: 2017

Publication information
Publisher: Tampereen teknillinen yliopisto

Publication series
Name: Tampereen teknillinen yliopisto. Rakennustekniikan laboratorio. Rakennustuotanto ja -talous. Raportti
Volume: 21
ISSN (Print): 2489-5717
Electronic versions:
vahahiiliisyys
Links:
Research output: Professional › Discussion paper
The aim of this article is to question the capacity of our state-of-the-art urban planning and urban systems to adapt to continuous changes and disturbances in the operating environment. We contribute to the current debate of alleged rigidity of planning by observing adaptability and evolution from a spatial-functional systems angle. We argue that in an attempt to help cities adapt to uncertain futures, strategic planning would benefit from the epistemology of resilience and complex systems for a better performance. Resilience approach entails the notion that disturbances are non-avoidable and critical for the constant evolution of cities and regions. However, this knowledge lacks operationalisation in planning practice. We observe the adaptability of urban systems and planning by reflecting their qualitative resilience capacity, addressing implicit deficiencies due to hierarchical orientation and, propose a spatially oriented framework to help indicate resilience potential from urban morphological qualities.
Accessibility improvement models for typical flats: Mass-customizable design for individual circumstances

Elderly housing policies in Finland emphasize aging in place and preparing the existing housing stock for the predicted increase in the aged population. Timely home modifications that enhance mobile accessibility are a focal target for these policies. This article introduces the idea of mass-customizable architectural accessibility improvement models (AIMs) that have been developed for typical Finnish flats. The applicability and generalizability of an AIM designed for an archetypal two-room flat is tested by applying it to nine case buildings in the city of Tampere. The model was found to be beneficial for 42 of the 45 rooms in the research material.

General information
State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: School of Architecture, Research group: Built Environment in Transition
Authors: Kaasalainen, T., Huuhka, S.
Number of pages: 24
Pages: 271-294
Publication date: 11 Aug 2016
Peer-reviewed: Yes

Publication information
Journal: Journal of Housing for the Elderly
Volume: 30
Issue number: 3
ISSN (Print): 0276-3893
Ratings:
Scopus rating (2016): CiteScore 0.87 SJR 0.306 SNIP 0.772
Scopus rating (2015): SJR 0.435 SNIP 0.5 CiteScore 0.63
Scopus rating (2014): SJR 0.439 SNIP 0.933 CiteScore 0.63
Scopus rating (2013): SJR 0.23 SNIP 0.387 CiteScore 0.44
Scopus rating (2012): SJR 0.257 SNIP 0.623 CiteScore 0.53
Scopus rating (2011): SJR 0.48 SNIP 0.805 CiteScore 0.75
Scopus rating (2010): SJR 0.428 SNIP 0.535
Scopus rating (2009): SJR 0.178 SNIP 0.324
Scopus rating (2008): SJR 0.17 SNIP 0.177
Scopus rating (2007): SJR 0.186 SNIP 0.132
Scopus rating (2006): SJR 0.11 SNIP 0.022
Scopus rating (2000): SJR 0.121
Scopus rating (1999): SJR 0.121
Original language: English
Keywords: housing, accessibility, renovation, elderly
DOIs: 10.1080/02763893.2016.1198739
Research output: Scientific - peer-review › Article

Venetsia biennial of architecture: Suomen Luontokeskus Haltia

General information
State: Published
Ministry of Education publication type: F1 Published independent work of art
Organisations: Architecture, Research group: Architecture: History and Theory
Authors: Lahdelma, I.
Publication date: 28 May 2016
Research output: Solo art production - peer-review › Exhibition
Homogenous homes of Finland: ‘Standard’ flats in non-standardized blocks

Several authors have successfully created and employed vintage cohorts and housing typologies in research addressing energy renovation needs in the existing dwelling stock. This paper suggests that the idea of types would be useful in creating living quality-related renovation and adaptation concepts for homes. These concepts could be used for increasing the accessibility and individuality of flats and easing life in cramped conditions by means of design. Therefore, the study tests the approach by examining the plan design of flats in one cohort: the Finnish 1960–80s’ dwelling stock. A total of 320 apartment blocks with 8745 flats in 51 cities are examined. The study identifies 18 different types of flats, which are based on 10 basic layouts, representing over 80% of all flats. Although the housing production of this era was characterized by cost-efficiency and industrialized prefabrication technologies, the result can be deemed somewhat surprising. This is because the building layouts were never standardized in Finland: only the production technology was standardized. The identified flat types are estimated to cover as much as one-third of all existing Finnish flats. These findings provide future opportunities for creating new mass-tailored renovation concepts.
Potential and Barriers for Reusing Load-Bearing Building Components in Finland

The European Waste Framework Directive, as set forth by the European Union in 2008, introduced a waste hierarchy that prioritizes reuse of waste over recycling whenever technically feasible and financially possible. In the field of construction, life cycle analyses on different materials have shown that reuse of structures possesses a remarkable carbon saving potential. This is the main asset that reuse has over virgin and recycled materials, although many other opportunities have also been recognized. Nevertheless, reuse has not gained ground in Western industrialized societies such as Finland. The barriers hindering reuse have been documented in the literature and they include cost, quality, quantity, perception and trust, among others.

In this study, a panel of experts working within construction and recycling industries, research and administration was surveyed about the reuse potential of prefabricated load-bearing components made of different materials in the Finnish context. In addition, the panelists were requested to identify the main barriers obstructing the reuse of the aforementioned components. The materials include concrete, steel and timber, which cover the majority of contemporary construction in Finland. The respondents evaluated that prefabricated steel has the highest reuse potential and concrete the lowest. The future potential of timber was seen as nearly equal to the potential of steel. In general, columns and beams were estimated to have better reuse potential than floor slabs and roof trusses. The potential of sandwich panels was evaluated to be the lowest.

The survey answers point out a number of issues that need addressing in order to enable reuse of components in large scale and in industrial construction. These results may not only have implications for recycling but for the technologies used in new construction as well. Especially prefabricated concrete was seen to be burdened by not being designed for deconstruction. However, it is the lack of an established practice that seems to be the main barrier for reusing steel and concrete. Technological constraints and physical properties may nonetheless delimit the utilization of some components. As for timber, its nature as a biodegradable material seems to form the main handicap for reuse, restraining the demand. Remarkably, cost of reuse was not seen to be among the most significant barriers, unlike other studies suggest.
Indicators for self-organization potential in urban context
Self-organization is a basic mechanism by which complex urban systems organize themselves. This mechanism emerges from individual agents’ local interactions, often with unpredictable consequences at the regional level. These emergent patterns cannot be controlled by traditional hierarchical methods, but they can be steered and encouraged towards desirable goals. Self-organization is often used as an allegory for all ‘unplanned’ activity in cities. It is important to study the actual mechanisms of self-organization in cities to link the theory of self-organization to planning praxis. This work builds on ongoing work exploring novel complex planning tools and methods. Here I explore the key features of open dynamic systems identified in the literature as indicators of self-organizing capacity. I study their applicability in urban spatial planning, and propose three measurable characteristics for estimating the self-organization potential of urban activities. Flow reflects generic accessibility, and is measured using space syntax. Internal order refers to autonomously organizing entities, in this case the clustering tendencies of activities. Enriching rests upon increasing complexity and is measured as changes in degrees of entropy over time. The results indicate that (1) the study area meets the criteria for self-organization, and (2) these characteristics can be applied to discover nodes of higher potential for self-organization in a city.

General information
State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: School of Architecture, Research group: Urban Planning Theory
Authors: Partanen, J.
Number of pages: 21
Pages: 951-971
Publication date: 19 Sep 2015
Peer-reviewed: Yes
Reusing concrete panels from buildings for building: Potential in Finnish 1970s mass housing

A remarkable share of European mass housing was built with large-panel systems during the 1960s and 1970s. In many countries, this stock is already being demolished or demolition is discussed due to vacancies or social problems. This
trend may result in the creation of an unforeseeable amount of concrete waste. Simultaneously, EU has issued the Waste Framework Directive aiming at reuse instead of recycling. Unlike in situ cast concrete, reclaimed prefabricated concrete panels from mass housing carry the potential for reuse. The purpose of this study is to review the reuse potential embedded in Finland's mass housing stock from the perspective of the dimensions of the panels and spaces, i.e., their suitability for architectural (plan) design. The research material consists of architectural drawings of 276 blocks of flats that contain over 26 000 prefabricated wall panels and nearly 14 000 hollow-core slabs, the dimensions of which are compared to current norms and guidelines for dimensioning living spaces. The technical prerequisites for reuse are reviewed with the help of literature. The study results in identifying an inventory of panels typical to Finnish precast concrete construction, which, in principle, should not exist because the building plans were not standardized but were supposed to be unique. The panels are found to be still usable in architectural (plan) design of detached houses, which form one third of annual residential production in Finland.

**General information**

State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Research group: Service Life Engineering of Structures, Life Cycle Effectiveness of the Built Environment (LCE@BE), School of Architecture, Department of Civil Engineering, Research group: Built Environment in Transition
Authors: Huuhka, S., Kaasalainen, T., Hakanen, J. H., Lahdensivu, J.
Number of pages: 17
Pages: 105-121
Publication date: 17 Aug 2015
Peer-reviewed: Yes
Early online date: 15 Jun 2015

**Publication information**

Journal: Resources Conservation and Recycling
Volume: 101
Article number: 3029
ISSN (Print): 0921-3449
Ratings:

Scopus rating (2016): CiteScore 3.73 SJR 1.16 SNIP 1.709
Scopus rating (2015): SJR 1.275 SNIP 1.915 CiteScore 3.98
Scopus rating (2014): SJR 1.339 SNIP 2.089 CiteScore 3.7
Scopus rating (2013): SJR 1.432 SNIP 2.184 CiteScore 3.34
Scopus rating (2012): SJR 1.262 SNIP 1.811 CiteScore 2.91
Scopus rating (2011): SJR 1.119 SNIP 1.848 CiteScore 2.62
Scopus rating (2010): SJR 1.163 SNIP 1.82
Scopus rating (2009): SJR 1.143 SNIP 1.647
Scopus rating (2008): SJR 0.803 SNIP 1.302
Scopus rating (2007): SJR 0.783 SNIP 1.708
Scopus rating (2006): SJR 0.933 SNIP 1.688
Scopus rating (2005): SJR 0.719 SNIP 1.426
Scopus rating (2004): SJR 1.031 SNIP 1.425
Scopus rating (2003): SJR 0.571 SNIP 1.086
Scopus rating (2002): SJR 0.399 SNIP 0.856
Scopus rating (2001): SJR 0.328 SNIP 0.953
Scopus rating (2000): SJR 0.582 SNIP 0.938
Scopus rating (1999): SJR 0.479 SNIP 0.879

Original language: English
ASJC Scopus subject areas: Waste Management and Disposal, Economics and Econometrics
Keywords: Construction and demolition waste, Deconstruction, Dimensions, Precast concrete panels, Reuse, Salvage
Electronic versions:

Huuhka_et_al_Reusing_concrete_panels_from_buildings_for_building_Accepted_Manuscript. Embargo ended: 15/06/17

DOI:
10.1016/j.resconrec.2015.05.017

Links:

Bibliographical note
Obstacles and opportunities for the reuse of structural elements
The revised Waste Framework Directive (WFD) obliges Member States to improve material recycling. The EU's objective is to achieve a recycling rate of 70% for construction waste by the year 2020. Direct re-use of building elements is one way to support the objective.

In a national ReUSE project jointly funded by the Ministry of the Environment, VTT Technical Research Centre of Finland, Tampere University of Technology, Ekokem and Finnish Wood Research, the obstacles to and opportunities for re-use of structural elements were evaluated. The project addressed the potential and challenges currently facing the re-use of elements from existing buildings and design for re-use in new buildings. Number of case studies in which elements have been used in new buildings has also been mapped in the project.

Returning the structural components back to service in the built environment is a rather complex process affecting all the parties involved in the life cycle. Designers have to consider the new source of materials and carefully plan for deconstruction, increased demand for coordination and flexibility in decision making will be needed during construction, and finally new business areas can be opened up to provide services for the phase between deconstruction and new building. The process also depends strongly on the size and complexity of the element or structure that is being re-used.

Re-use of building elements without re-processing saves almost all of their embodied impacts and preserves their economic and cultural value. This has been always seen as the biggest opportunity to increase environmental efficiency of the built environment. In most of the cases the presented concept competes with other recovery strategies, and therefore its feasibility has to be always evaluated. Moreover, it is possible to extend the service life of such composite elements in existing building stock that cannot be easily recycled because of difficult material separation. Re-use creates many business opportunities in the local communities especially for re-distribution of salvaged material. In many cases is also cheaper to dismantle building part-by-part and sell the components than traditional demolition and waste processing. In that sense we can conclude that re-use concept is contributing to all aspects of sustainability of the built environment.
Unfortunately, there are many practical barriers to the building components re-use that should be addressed. One is the lack of strength grading rules for materials in re-used elements. This means that re-usable load-bearing components are forced to be applied for non-structural purpose unless they are thoroughly tested. Another barrier is the difficult deconstruction of existing buildings. The extended time and high demands on manual labour is usually increasing the cost of the whole process. This can be partly improved by applying standardized deconstruction practices, proper staff training and using selected technologies for deconstruction. However, the greatest impact on the building re-usability is in its design stage. Therefore we recommend addressing this issue in the planning of future steps towards resource efficiency.
Asukasläähiöinen puukerrostalokorttelitilaelementeistä: Esimerkkinä Kokkolan Nukkumatin tontin suunnitelma

This study examines resident-oriented modular timber framed construction in relation to the residential environment, multi-storey apartment buildings and apartments. Resident-orientation is a concept that in housing construction terminology, specifies the concept of user-orientation.

Special features of the production of modular timber framed construction affect design mainly in the scales of apartments and apartment buildings. When an apartment can be modified to suit the user's needs, a building's service life and the degree of utilisation increase. This study examines the possibilities of adaptable modular timber framed housing construction using the principle of adaptable zones and examples of three placement methods of modules as a tool. The analysis is supported by a large variety of modular timber framed apartment studies and their adaptable variations.

The study also attempts to better understand – regardless of the production method – the appreciation of residential environments and seeks to find an interpretation of how the built environment can be developed on the basis of residential preference studies. In addition, the study analyses the potential benefits of modular timber framed construction for realising residential environment preferences.

The study combines practical design and theoretical analysis. The study has incorporated two case designs, of which one modular timber framed housing block in central Kokkola is introduced. The aim of the study is to both determine necessary areas of development regarding modular timber framed building construction from the viewpoint of architectural and housing design; and to function as a resource for ideas and knowledge regarding the design of modular timber framed housing blocks.

General information
State: Published
Ministry of Education publication type: D4 Published development or research report or study
Organisations: School of Architecture, Research group: ASUTUT
Authors: Kotilainen, S., Hedman, M.
Number of pages: 213
Publication date: 7 May 2015

Publication information
Place of publication: Tampere
Publisher: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos
Library as a Partner in Co-Designing Learning Spaces: A Case Study at Tampere University of Technology, Finland

This article presents a case of co-designed temporary learning spaces at a Finnish academic library, together with the results of a user-survey. The experimental development of the multifunctional spaces offered an opportunity for the library to collaborate with its parent organisation thus broadening the role of the library. Hence, library can be seen as a third player facilitating learning spaces. Additionally, the library's own expertise was strengthened through successful cooperation with the undergraduate students and other actors. The results support prior research, where studying in the library is target-oriented differing from other learning spaces in providing support and resources.

General information
State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: Library, School of Architecture, Research group: Public Buildings
Authors: Tevaniemi, J., Poutanen, J., Lähdemäki, R.
Number of pages: 21
Pages: 304-324
Publication date: 7 May 2015
Peer-reviewed: Yes

Publication information
Journal: New Review of Academic Librarianship
Volume: 21
Issue number: 3
ISSN (Print): 1361-4533
Ratings:
Scopus rating (2016): SJR 0.687 SNIP 1.013 CiteScore 1.35
Scopus rating (2015): SJR 0.669 SNIP 0.76 CiteScore 0.65
Scopus rating (2014): SJR 1.027 SNIP 0.844 CiteScore 0.71
Scopus rating (2013): SJR 1.222 SNIP 1.598 CiteScore 0.96
Scopus rating (2012): SJR 0.635 SNIP 0.66 CiteScore 0.48
Scopus rating (2011): SJR 0.718 SNIP 1.32 CiteScore 0.67
Original language: English
Keywords: co-design, cooperation, learning commons, learning spaces, undergraduate students
ASJC Scopus subject areas: Library and Information Sciences
DOIs:
10.1080/13614533.2015.1025147
Links:

Bibliographical note
publication_forum:64000
Source: Scopus
Source-ID: 84929012604
Research output: Scientific › peer-review › Article
Housing production is usually based on the belief of predictability, but this approach is inconsistent with the fact that the future cannot be predicted. Residential design and construction must therefore adopt more flexible and adaptable principles, where the impossibility of making predictions is taken into account. Adaptable housing can help to meet the forthcoming and increasingly diverse housing needs, providing housing alternatives in a sustainable way. Ten visions presented in this publication introduce a wide range of means, methods and scales to achieve adaptability and flexibility in housing construction. The publication consists of ten design assignments created during an advanced housing design course at Tampere University of Technology in spring 2013. The publication presents not only a wide range of means to achieve flexibility in housing construction, but also their direct connection with the practice. The publication is part of a study concerning user-centric spaces in the Indoor Environment Program of RYM Oy.

**General information**

State: Published
Ministry of Education publication type: D6 Edited professional books
Organisations: School of Architecture, Research group: ASUTUT
Number of pages: 268
Publication date: 31 Mar 2015

**Publication information**

Place of publication: Tampere
Publisher: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos
Original language: Finnish

**Publication series**

Name: Housing Design
Publisher: Tampere University of Technology. School of Architecture. Housing Design. Publication;16
Electronic versions: joustavat_asuinymparistot
Links:
Links:

**Bibliographical note**

Versio ja lupa ok 12.1.2016 KK
Research output: Professional › Anthology

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**Matkaila joustaviin asuinympäristöihin**

**General information**

State: Published
Ministry of Education publication type: D2 Article in professional manuals or guides or professional information systems or text book material
Organisations: School of Architecture, Research group: ASUTUT
Authors: Kotilainen, S.
Number of pages: 4
Pages: 10-13
Publication date: 31 Mar 2015

**Host publication information**

Title of host publication: Joustavat asuinympäristöt: 10 visiota aikaa kestävään kaupunkiasumiseen
Volume: 16
Place of publication: Tampere
Publisher: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos
Article number: 1

**Publication series**

Name: Housing Design
Publisher: Tampere University of Technology. School of Architecture.
Volume: 16
Laboratorioiden yhteiskäyttö yliopistokampuksilla

Tässä artikkelissa kuvataan, miten laboratorioiden yhteiskäyttöisyyttä on menestyksekästästi sovellettu biolääketieteellisellä yliopistokampuksella 1990-luvulta lähtien ja miten yhteiskäyttöisyys on vaikuttanut laboratorioriavun, yhteiskäyttöisyysavun ja kuntamäärä Baxteren käytännön näkökulmasta. Tämä on ollut ratkaisu, joka on ollut menestyksekäs ja joka on vaikuttanut laboratorioriavun, yhteiskäyttöisyysavun ja kuntamäärän käytännön näkökulmasta. Laboratorioriavun ratkaisun edistäminen on ollut menestyksekäs ja joka on vaikuttanut laboratorioriavun, yhteiskäyttöisyysavun ja kuntamäärän käytännön näkökulmasta.

General information

State: Published
Ministry of Education publication type: D2 Article in professional manuals or guides or professional information systems or text book material
Organisations: School of Architecture, Research group: Public Buildings
Authors: Yläoutinen, J., Peltoniemi, S.
Number of pages: 10
Publication date: Mar 2015

Host publication information

Title of host publication: Oppiva kampus : How to co-create campus?
Place of publication: Tampere
Publisher: Suomen Yliopistokiinteistöt Oy
Editors: Nenonen, S., Kärnä, S., Junnonen, J., Tähtinen, S., Sandström, N.

Bibliographical note

EXT="Yläoutinen, Jyrki"
Maailma muuttuu – miksei lähiöasunnotkin?
Tampere University of Technology’s School of Architecture studies how the Finnish 1970's housing estates could be renovated to meet today's changed housing needs.

School travel mode choice and the characteristics of the urban built environment: The case of Helsinki, Finland
As observed in several previous studies, the nature of the urban structure can affect children's mode of transportation to school. In this paper, we identify and investigate, in the Finnish context, the elements of the urban structure around homes and en route to school that promote children's ability to walk or cycle to school, using the conceptual domains proposed by Mitra (2013) to frame the work.

The associations discovered can, to a large extent however, be viewed as contrasting significantly with those identified in previous research, as an increase in the variables, essentially indicating urbanity, decreased the likelihood of the children walking or cycling to school. This is due to the existence of a well-functioning public transportation network in the Helsinki region. The associations were more significantly associated with the environment en route to school than with the environment around homes. This research improves our understanding of active school transportation behaviour in an environment that is already relatively supportive of active transportation and independent mobility by offering a well-functioning public transportation system. (C) 2014 Elsevier Ltd. All rights reserved.
A comparative study of urban form

This paper compares four different approaches to urban morphology: historico-geographical, process typological, space syntax, and spatial analytical. It explores in particular the use of four fundamental concepts proposed in these approaches: morphological region, typological process, spatial configuration, and cell. The four concepts are applied in a traditional gateway area of the city of Porto, Portugal. The area includes considerable variety of urban form. The main purpose is to understand how to combine and co-ordinate these approaches so as to improve the description, explanation and prescription of urban form.

General information
State: Published
Ministry of Education publication type: A1 Journal article-refereed
Authors: Oliveira, V., Monteiro, C., Partanen, J.
Number of pages: 20
Pages: 73-92
Publication date: 2015
Peer-reviewed: Yes
Einutkertaisten tarpeiden tragedia

General information
State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: School of Architecture, Research group: EDGE
Authors: Joutsiniemi, A.
Publication date: 2015
Peer-reviewed: Yes

Publication information
Journal: Yhdyskuntasuunnittelu
Volume: 53
Issue number: 2
ISSN (Print): 1459-6806
Original language: Finnish
Links:
http://www.yss.fi/journal/ainutkertaisten-tarpeiden-tragedia/
Research output: Scientific - peer-review › Editorial

Arkinen liikkuminen kontekstina kaupunkitilan tarkasteluun

General information
State: Published
Organisations: School of Architecture
Authors: Tartia, J.
Publication date: 2015
Peer-reviewed: No
Children and youth transport in different urban morphological types

As demonstrated in many earlier studies, the qualities of physical environment have great impacts on physical activity (PA) behavior. However, studying individual built environmental variables often produces contradictory effects between studies. To overcome this, we composed multivariate environmental types using principal component analysis that take notice of the inter-correlations between the physical environmental variables. To get a realistic view of the places children and adolescents visit in their daily life, we used mapping methodology where children themselves defined their important places. Based on 16 built environmental variables, six built environmental types were composed around these places.

We found that walking and cycling was most prominent in residential environments and least common in mixed use areas with offices. Environments with big commercial buildings as well as green environments had the highest proportions of car use. Most places, in general, were visited with friends, but most typically, areas with big commercial buildings and mixed use areas with offices were reached in the company of friends. Relatively many places were visited alone in residential areas.
Experience-Driven Design of Ambiences for Future Pop Up Workspaces

Knowledge work is in transformation and new means for supporting workers’ wellbeing and productivity are needed. Pop Up workspaces are temporary and often social working environments where people can modify their environment to suit their current work mode. The aim of the present research was to explore the opportunities of future Pop Up workspaces, and specifically their technology-mediated ambiences that can provide meaningful experiences for the workers. We employed the Experience-Driven Design (EDD) approach to gain insights of the desired experiences in Pop Up workspaces. We first conducted three participatory group sessions to ideate experience types for Pop Up workspaces. We then run a multidisciplinary concepting workshop in which we designed concepts for technology-mediated ambiences. Five experience categories for worker mindsets were identified, namely Liberty, Fellowship, Determination, Retreat and Recovery. We present ambience concepts that utilise the mindsets and related target experiences, and how they can be supported by ambient technologies.

General information
State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: Department of Pervasive Computing, Research group: Public Buildings, School of Architecture, Department of Information Management and Logistics, Research group: Novi, Research area: User experience, Augmented Human Activities (AHA), Institute of Society and Space (SOCIS)
Authors: Ahtinen, A., Poutanen, J., Vuolle, M., Väänänen, K., Peltoniemi, S.
Number of pages: 17
Pages: 296-312
Publication date: 2015

Host publication information
Title of host publication: Ambient Intelligence : 12th European Conference, AmI 2015, Athens, Greece, November 11-13, 2015, Proceedings
Publisher: Springer Verlag
ISBN (Print): 978-3-319-26004-4
ISBN (Electronic): 978-3-319-26005-1

Publication series
Name: Lecture Notes in Computer Science
Volume: 9425
ISSN (Print): 0302-9743
DOIs:
10.1007/978-3-319-26005-1_20
Links:
http://www.ami-conferences.org/2015/

Bibliographical note
ORG=tie,0.7
ORG=ark,0.2
ORG=tlo,0.1
Research output: Scientific - peer-review » Conference contribution

Kangasala-talo: Vanhan kulttuuripitäjän uusi kulttuuritalo

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture, Research group: History of Architecture
Authors: Koponen, O.
Number of pages: 3
Pages: 67-69
Publication date: 2015
Peer-reviewed: Unknown

Publication information
Kastellin monitoimitalo Oulu, Arkkitehtilehti 4/15

General information
State: Published
Ministry of Education publication type: F1 Published independent work of art
Organisations: School of Architecture, Research group: Architecture: History, Theory and Innovations
Authors: Lahdelma, I.
Publication date: 2015
Research output: Solo art production › Architecture

Kattavasti rivitaloista

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture, Research group: ASUTUT
Authors: Helamaa, A.
Number of pages: 2
Pages: 80-81
Publication date: 2015
Peer-reviewed: Unknown

Publication information
Journal: Arkkitehtii
Issue number: 3
ISSN (Print): 0783-3660
Original language: Finnish
Research output: Professional › Book/Film/Article review

Kaupunki näyttämönä

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture, Research group: Urban Planning
Authors: Chudoba, M.
Number of pages: 2
Pages: 12-13
Publication date: 2015
Peer-reviewed: Unknown

Publication information
Journal: Arkkitehtuutiset
Issue number: 8
ISSN (Print): 0044-8915
Original language: Finnish
Links:
Research output: Professional › Article

Kaupunki uudistuu

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture, Research group: Urban Planning
Novel architectural solutions change campus design

The change in the learning paradigm from transmission of information to an active learning model is evident in higher education, too. From solitary to group work, from virtual to learning by doing, all means and methods are possible. Like a lively city, so do our campus premises need to support a greater variety of spaces, as learning is becoming more and more diverse. How does architecture, in different scales and different solutions, enliven the existing university campus?

From holistic to small surgical operations, architectural solutions are presented on three different scales; campus, building, and group of space. Pervasive solutions, in which the whole layout is drastically changed, possess potential in changing essentially human interaction and how the building is used. However, these solutions are slow and expensive to execute. Then again, targeted learning space solutions, created, for example, in an area of formerly supporting spaces, are less expensive but have an impact only in the vicinity or for a certain group of users. The existing premises of campuses possess a huge potential to be turned into vivid urban centers that support learning and research of the future. Hence, the existing buildings can be seen as platforms for novel architectural solutions, and stages to present universities state-of-the-art education and research. The outcomes of the research can be applied in different design stages and scales of campus environments. The article aims at evoking readers to ponder on novel and innovative solutions that could be used
in campus development, and can be seen as a conversation opener for designers, campus developers and users. The visions presented in this article inspire readers to look upon campuses from a new perspective through innovative examples and spatial solutions.

General information
State: Published
Ministry of Education publication type: D2 Article in professional manuals or guides or professional information systems or text book material
Organisations: School of Architecture, Research group: Public Buildings
Authors: Poutanen, J., Peltoniemi, S., Pihlajarinne, N.
Number of pages: 22
Pages: 60-81
Publication date: 2015

Host publication information
Title of host publication: How to co-create campus?
Place of publication: Tampere
Publisher: Suomen Yliopistokiinteistöt Oy
Editors: Nenonen, S., Kärnä, S., Junnonen, J., Tähtinen, S., Sandström, N., Airo, K., Niemi, O.
Links:
Research output: Professional › Chapter

Paluu ojankaivajien valtakuntaan

General information
State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: School of Architecture, Research group: EDGE
Authors: Joutsiniemi, A.
Publication date: 2015
Peer-reviewed: Yes

Publication information
Journal: Yhdyskuntasuunnittelu
Volume: 53
Issue number: 1
ISSN (Print): 1459-6806
Original language: English
Links:
http://www.yss.fi/journal/paluu-ojankaivajien-valtakuntaan-2/
Research output: Scientific - peer-review › Editorial

Postmodernismi Suomen rakennusperinnössä

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture, Research group: History of Architecture
Authors: Koponen, O.
Number of pages: 3
Pages: 72-74
Publication date: 2015
Peer-reviewed: Unknown

Publication information
Journal: Arkitehtti
Volume: 2015
Issue number: 2/2015
ISSN (Print): 0783-3660
Original language: Finnish
Research output: Professional › Article
Proffana provinssissa

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture, Research group: Urban Laboratory
Authors: Hynynen, A.
Number of pages: 2
Pages: 32-33
Publication date: 2015
Peer-reviewed: Unknown

Publication information
Journal: Arkkitehtiuutiset
Issue number: 9
ISSN (Print): 0044-8915
Original language: Finnish
Links:

Research output: Professional › Comment/debate

Puu-Hubi: Perinteestä uusiin innovaatioihin


Puurakentamisesta potkua alueiden ja kaupunkien kehittämiseen

General information
State: Published
Ministry of Education publication type: D2 Article in professional manuals or guides or professional information systems or textbook material
Organisations: School of Architecture, Research group: Urban Laboratory
Authors: Hynynen, A.
Number of pages: 19
Pages: 75-93
Publication date: 2015

Host publication information
Title of host publication: Puu-Hubi. : Perinteestä uusiin innovaatioihin
Publisher: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos
Editors: Hynynen, A., Panu, A., Taanila, T.
Links:
Research output: Professional › Chapter

Raitiotien seisakkeet: Yhdysskuntasuunniteltun jatkokurssin jatkokurssin aiheena oli Tampereelle toteutettava kaupunkiraitiotie, joka tulee helpottamaan huomattavasti kulkemista Tampereella tulevaisuudessa.

Kurssi oli sisällöltään ja osallistujiltaan epätavaranomainen. Osallistujia kurssilla oli useammasta eri tiedekunnasta: Tampereen teknillisen yliopiston arkkitehtuurin laitos ja liikennesuunnittelun opiskelijoita, Tampereen yliopistolta psykiatrin ja sosiologin opiskelijoita.

Kolmiosaisen kurssin painopiste oli urban design-osuudella, muiden ollessa vapaavalintaisia. Suunnittelukohteina poikkitieteellisesti muodostetuilla ryhmillä oli kolme Tampereen raitiotien yleissuunnitelmassa esitettyä seisaketta: Hakametsä, Turtola ja Hallila. Useat osallistujat olivat valinneet myös planning-osuuden, johon koottiin jäsenistö kunkin seisakkeen design-osuuden ryhmänä.

General information
State: Published
Ministry of Education publication type: D4 Published development or research report or study
Organisations: School of Architecture, Research group: Urban Planning
Number of pages: 74
Publication date: 2015

Publication information
Publisher: Tampere University of Technology, School of Architecture
ISBN (Print): 978-952-15-3456-0
Original language: Finnish
Electronic versions:
raitiotien_seisakkeet
Urban Planning and Design Advanced Course, co-ordinated by Tampere University of Technology Architecture School, opened up a possibility for the collaboration of two universities in Autumn 2014. The multidisciplinary student groups were given a task: to design a tram stop and its environment in Tampere. A real project was behind the task, giving a concrete motivation for the negotiations.
Stirring the Construction Project Management with Co-creation and Continuous Improvement

Abstract Gathering information that is capable to explain customers’ needs is usually seen as a quite straightforward part of the traditional construction process: a customer should be able to tell all relevant needs in the first stage so that a building could be designed and built according to the gained information. But the process is lacking of service abilities if a customer wants to modify the given information due to a change in circumstances, albeit such a change is easily caused due turbulent economic situations and long spans in real-estate development projects. Hence the customer perspective regarding the construction management (CM) process should be accommodated better. In this paper, the case studies of the four premises improvement projects are reported upon, where the CM process was altered to include and apply the concepts of continuous improvement and co-creation. The process documentation covered the impacts of the case project on the usability of the premises, the indoor climate conditions (carbon dioxide and temperature) metering, the time lapse cameras and the on-line user feedback system. The documentation consists of the minutes of the meetings, the financial reporting and the time tables. Both the processes and the results of the projects are analysed. Based on the key findings, some suggestions are put forth upon how to improve the CM process to better serve customer interests and quality improvement in the future.

Sustainable Design Studio 2014

The City of Tampere is experiencing a great regeneration boom. Several central areas are under redevelopment. The Hakametsä area is one of them. The ice hockey hall of Hakametsä and the surrounding commercial areas will be redeveloped in the near future. The identity and integrated sustainable urban solutions unifying the entire Hakametsä area
is becoming a key issue.

The Sustainable Design Studio 2014 looked at the opportunities related to sustainable redevelopment of the new city district. In particular, the focus was in the intersection of Hervannan valtaväylä and Sammon valtatie. Currently this intersection divides the area in separate and isolated sections with very scattered street scape and difficult accessibility for light-traffic. The restructuring of the entire city structure could offer several opportunities for more sustainable city district in connection to the new tram line.

The task for the students had to two parts with different objectives and urban scales. The first part included a group work analysis on the Hakametsä area and designing a new urban strategy for a sustainable city district. The lack of overall scheme for the area motivated the students to look at the intersection area as the point for connecting the four sectors divided by Hervannan valtaväylä and Sammon valtatie.

The second individual part of the assignment consisted of designing additional floors to an existing residential building next to the Hakametsä ice hockey rink. The work aimed at creating appealing typological solutions for attractive in-fill architecture thus increasing the opportunities for densification of the 70s residential areas at large. The starting point for the design was the structural system developed in KORKO research project of the Tampere University of Technology. The research project delivered a concept for a prefabricated steel structure allowing fast and affordable assembly of prefabricated wooden housing modules. The objective of the course was to connect university education and research in a mutually benefiting way that is motivating for the students.

The results of the studio provided a comprehensive overview of different approaches to reshape the urban plan for more sustainable city structure. The need for the new character of Hervannan valtaväylä became evident. Should the road be a main artery focusing on delivering the traffic flows, or, is it part of integrated city structure potentially lowering the speeds of vehicles and calling for improved light-traffic conditions? The students’ works opened up a number of alternative perspectives – including engineering studies on sustainability issues. The Hakametsä area is a great potential for sustainable urban densification within the proximity of the city center, yet with a unique character making it a distinct and identifiable place.
What makes a Place? Claiming Spaces for Informal and Social Learning

How to redesign an under-used secondary space into a lively social and informal learning space? Here, three case studies are compared to shed light on what spatial elements create a Place for learning. At many university premises informal learning spaces are often limited to libraries and social interactions to cafés. However, secondary spaces, such as halls and corridors, which are located in popular areas on campuses, have great potential when redesigned into novel social and informal learning spaces, which increases the efficiency of the spaces, too. The cases differ in design and development manners: two novel learning spaces created in a lobby, a renovation of a campus café and co-created learning spaces in an academic library. The cases offer practical implications and elements on how to create new learning spaces successfully. Common for all these cases is the positive feedback produced by a pleasant, uplifted environment. These realized cases suggest that relatively small, acupuncture-like changes to existing spaces can create a relatively big impact.
Asemanseudut solmukohtina: Kehittämisen pullonkauloja ja mahdollisuuksia

General information
State: Published
Ministry of Education publication type: D3 Professional conference proceedings
Organisations: School of Architecture, Research group: Urban Laboratory
Authors: Hynynen, A., Kolehmainen, J.
Publication date: 23 Sep 2014

Host publication information
Title of host publication: XVI Kaupunkifoorumi Hämeenlinnassa 23.-24.9.2014
Publisher: Työ- ja elinkeinoministeriö
Links:
http://www.tem.fi/kaupunkifoorum2014
Research output: Professional › Conference contribution

A Deep Organic Re-reading of Alvar Aalto’s Design Approach

General information
State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: School of Architecture
Authors: Hynynen, A.
Number of pages: 12
Pages: 28-39
Publication date: 2014

Host publication information

Publication series
Name: University of Oulu, Department of Architecture, Publications
No.: A61
ISSN (Print): 0357-8704
Links:
http://ojs.tsv.fi/index.php/atut/

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2014-12-30
Source: researchoutputwizard
Source-ID: 528
Research output: Scientific - peer-review › Conference contribution

Arkkitehtuuri polttopisteessä
Ministry of Education publication type: B3 Non-refereed article in conference proceedings
Organisations: School of Architecture
Authors: Hedman, M.
Number of pages: 2
Publication date: 2014

Host publication information
Title of host publication: Landscape Accessibility, Landscape Accessibility International Workshop - Milazzo 2014
Publisher: ARACNE
Editor: Morabito, V.

Publication series
Name: Intelligent landscape
No.: 3

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2014-12-30<br/>Publisher name: ARACNE
Source: researchoutputwizard
Source-ID: 420
Research output: Scientific › Conference contribution

Finnish Building Stock: Does Urban Shrinkage Equal Demolition?

General information
State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: School of Architecture, Research group: Built Environment in Transition
Authors: Huuhka, S.
Number of pages: 156
Pages: 64-71
Publication date: 2014

Host publication information
Title of host publication: ATUT Proceedings, 5th Annual Symposium of Architectural Research, ARCHITECTURE AND RESILIENCE, August 28-30, 2013 Tampere, Finland
Place of publication: Tampere
Publisher: Tampere University of Technology, School of Architecture
Editors: Chudoba, M., Joachimiak, M., Laak, M., Lehtovuori, P., Partanen, J., Rantanen, A., Siter, N.
Links:

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2015-01-26<br/>Publisher name: Tampere University of Technology, School of Architecture
Source: researchoutputwizard
Source-ID: 521
Research output: Scientific - peer-review › Conference contribution

Future-oriented building stock studies and the significance of values: addressing demolition behaviour with the Delphi method

General information
State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: School of Architecture, Research group: Built Environment in Transition
Authors: Huuhka, S.
Number of pages: 8
Pages: 56-63
Publication date: 2014

Host publication information
Huippupuhujia Arkkitehtuuriivikolla

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture
Authors: Lehtovuori, P.
Number of pages: 2
Pages: 16-17
Publication date: 2014
Peer-reviewed: Unknown

Publication information
Journal: Arkkitehtiuutiset
Issue number: 11
ISSN (Print): 0044-8915
Original language: Finnish

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2014-12-30
Source: researchoutputwizard
Source-ID: 912
Research output: Professional › Article

Interactive and Engaging Social Learning Spaces for Collaboration

General information
State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: School of Architecture
Authors: Poutanen, J., Syvänen, A., Frydenberg, M., Turunen, M., Walton, G.
Number of pages: 6
Pages: 1429-1434
Publication date: 2014

Host publication information
Title of host publication: Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications; EdMedia 2014, World conference on educational Media and Technology, Dates: June 23 - 26, 2014, Location: Tampere, Finland
Publisher: Association for the Advancement of Computing in Education (AACE)
ISBN (Electronic): 978-1-939797-08-7

Publication series
Name: World Conference on Educational Multimedia, Hypermedia and Telecommunications
Volume: 2014
No.: 1
Links:
http://www.editlib.org/p/147672/
http://www.editlib.org/j/EDMEDIA/v/2014/n/1/

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2015-01-11<br/>Publisher name: Association for the Advancement of Computing in Education (AACE)
Source: researchoutputwizard
Kastellin monitoimitalo Oulu, Prointerior 4/2014

General information
State: Published
Ministry of Education publication type: F1 Published independent work of art
Organisations: School of Architecture, Research group: Architecture: History, Theory and Innovations
Authors: Lahdelma, I.
Publication date: 2014
Research output: Solo art production › Architecture

Kastellin monitoimitalo Oulu / Projektiuutiset 4/2014

General information
State: Published
Ministry of Education publication type: F1 Published independent work of art
Organisations: School of Architecture, Research group: Architecture: History, Theory and Innovations
Authors: Lahdelma, I.
Publication date: 2014
Research output: Solo art production › Architecture

Kastellin monitoimitalo Ouluun kumppanuuussopimuksella: Projektiuutiset: 4: 160-168

General information
State: Published
Ministry of Education publication type: F3 Artistic part of a non-artistic publication
Organisations: School of Architecture, Research group: Architecture: History, Theory and Innovations
Authors: Lahdelma, K. I.
Publication date: 2014
Media of output: Other
Research output: Art in non-art work › Architecture

Kohti kestävää Skanssia
Kurssijulkaisu. Julkaisu sisältää syksyllä 2013 pidetyn Sustainable Design Studion opiskelijoiden palauttamia
harjoitustöitä, jotka sijoittuvat Turun Skanssin tulevalle asuinalueelle. Julkaisuun on koottu kuuden opiskelijaryhmän
analyysit sekä struktuuri & masterplan ehdotukset. Lisäksi 12 opiskelijan yksilötyöt ovat esillä tässä julkaisussa. Julkaisu
sisältää myös viherkatto- ja hulevesitutkielman sekä maisema- ja ympäristösuunnitelman Skanssin tulevalle asuinalueelle.

General information
State: Published
Ministry of Education publication type: D4 Published development or research report or study
Organisations: School of Architecture
Authors: Laak, M. (ed.), Del Barrio Batista, J. (ed.)
Number of pages: 87
Publication date: 2014

Publication information
Publisher: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos
Original language: Finnish
Electronic versions:
kohti_kestavaa_skanssia
Links:

Bibliographical note
Versio ok 14.12.2015
Research output: Professional › Commissioned report
On-campus Third Places for Collaborative Use and BYOD

General information
State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: School of Architecture
Authors: Poutanen, J., Syvänen, A.
Number of pages: 7
Pages: 1395-1401
Publication date: 2014

Host publication information
Title of host publication: Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications; EdMedia 2014, World conference on educational Media and Technology, Dates: June 23 - 26, 2014, Location: Tampere, Finland
Publisher: Association for the Advancement of Computing in Education (AACE)
ISBN (Electronic): 978-1-939797-08-7

Publication series
Name: World Conference on Educational Multimedia, Hypermedia and Telecommunications
Volume: 2014
No.: 1
Links:
http://www.editlib.org/p/147665/
http://www.editlib.org/j/EDMEDIA/v/2014/n/1

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2014-09-30<br/>Publisher name: Association for the Advancement of Computing in Education (AACE)
Source: researchoutputwizard
Source-ID: 1298
Research output: Scientific - peer-review › Conference contribution

Orimattilan Henna

General information
State: Published
Ministry of Education publication type: D4 Published development or research report or study
Organisations: School of Architecture
Authors: Laak, M. (ed.)
Number of pages: 89
Publication date: 2014

Publication information
Publisher: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos
Original language: Finnish
Electronic versions:
orumattilan_henna
Links:

Bibliographical note
Versio ok 16.12.2015
Research output: Professional › Commissioned report

Peukuttelevaa osallistumista ja ilon kautta suunnittelua
Pientaloa parempi? Better than an individual small house?

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture
Authors: Kotilainen, S., Hedman, M.
Pages: 48-51
Publication date: 2014
Peer-reviewed: Unknown

Publication information
Journal: Puu
Issue number: 3
Original language: Finnish
Links:
http://www.puuinfo.fi/puulehti/puu-lehti-32014

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2015-01-11
Source: researchoutputwizard
Source-ID: 798
Research output: Professional › Article

Pop-Up Spaces: From Prototyping to a Method of Revealing User-Attitudes

General information
State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: School of Architecture
Authors: Poutanen, J.
Number of pages: 11
Pages: 13-23
Publication date: 2014

Host publication information
Title of host publication: ATUT Proceedings, 5th Annual Symposium of Architectural Research, ARCHITECTURE AND RESILIENCE, August 28-30, 2013 Tampere, Finland
Place of publication: Tampere
Publisher: Tampere University of Technology, School of Architecture
Editors: Chudoba, M., Joachimiak, M., Laak, M., Lehtovuori, P., Partanen, J., Rantanen, A., Siter, N.
Links:
Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2015-01-26<br/>Publisher name: Tampere University of Technology, School of Architecture
Source: researchoutputwizard
Source-ID: 1297
Research output: Scientific - peer-review › Conference contribution

Puu, tulevaisuuden materiaali

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture, Research group: Urban Laboratory
Authors: Panu, A.
Number of pages: 2
Pages: 14-15
Publication date: 2014
Peer-reviewed: Unknown

Publication Information
Journal: Arkkitehtiuutiset
Issue number: 12
ISSN (Print): 0044-8915
Original language: Finnish
Research output: Professional › Article

Systemic Sustainability and Emerging Diversity of Shopping Concepts in Urban Multi-Agent Networks

General information
State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: School of Architecture, Research group: EDGE, Institute of Society and Space (SOCIS)
Authors: Rantanen, A., Iltanen, S., Joutsiniemi, A.
Pages: 510-517
Publication date: 2014

Host publication information
Title of host publication: New Urban Configurations
Publisher: Delft University Press
Editors: Cavallo, R., Komossa, S., Marzot, N., Berghauser Pont, M., Kuijper, J.
ISBN (Print): 978-1-61499-365-0
DOIs: 10.3233/978-1-61499-365-0-517

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2015-03-20
Source: researchoutputwizard
Source-ID: 1352
Research output: Scientific - peer-review › Conference contribution

Tampereen Rantatunnelin Melutaide-gallerian teokset: Yksi kuudesta Melutaidegalleriaan osallistuvasta kuvataiteilijasta

General information
State: Published
Ministry of Education publication type: F2 Public partial realisation of a work of art
Organisations: School of Architecture, Research group: Architecture: History, Theory and Innovations
Authors: Soini, H.
Publication date: 2014
Research output: Art in coproduction - peer-review › Artefact

Tavoitteena lähipuukerrostalo
Towards a sustainable Skanssi

Course publication. The publication contains course works submitted for the Sustainable Design Studio 2013 which concentrate on the future development of the Skanssi area in Turku. For the publication six student groups' analyses and structure & masterplan –proposals have been gathered. In addition to that, selected individual works by 12 students are shown in this publication. Furthermore this publication contains a green roof and storm water management analysis and an environmental and landscape management proposal for the new residential areas.

General information
State: Published
Ministry of Education publication type: D4 Published development or research report or study
Organisations: School of Architecture
Authors: Laak, M. (ed.), Del Barrio Batista, J. (ed.)
Number of pages: 87
Publication date: 2014

Publication information
Publisher: Tampere University of Technology, School of Architecture
Original language: English
Electronic versions: towards_a_sustainable_skanssi
Links:

Bibliographical note
AUX=ark,"Del Barrio Batista, Juan"

Versio ok 14.12.2015
Research output: Professional › Commissioned report

Vanhasta puusta uutta arkkitehtuuria / New architecture from old wood
Well-being Architecture in Academic Workplace

General information
State: Published
Ministry of Education publication type: B3 Non-refereed article in conference proceedings
Organisations: School of Architecture
Authors: Peltoniemi, S.
Number of pages: 8
Pages: 283-290
Publication date: 2014

Host publication information

Publication series
Name: University of Oulu, Department of Architecture, Publications
No.: A61
ISSN (Print): 0357-8704
Links:
http://ojs.tsv.fi/index.php/atut/

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2015-01-11
Source: researchoutputwizard
Source-ID: 1261
Research output: Scientific › Conference contribution

Where Do you Start to Design a Dwelling?

General information
State: Published
Organisations: School of Architecture
Authors: Kotilainen, S.
Number of pages: 2
Publication date: 2014
Host publication information
Title of host publication: Landscape Accessibility, Landscape Accessibility International Workshop - Milazzo 2014
Publisher: ARACNE
Editor: Morabito, V.

Publication series
Name: Intelligent landscape
No.: 3

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2014-12-30<br/>Publisher name: ARACNE
Source: researchoutputwizard
Source-ID: 797
Research output: Scientific › Other chapter contribution

Yhdessä

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture
Authors: Helamaa, A.
Number of pages: 10
Pages: 18-27
Publication date: 2014
Peer-reviewed: Unknown

Publication information
Journal: Arkitehtti
Issue number: 4
ISSN (Print): 0783-3660
Original language: Finnish

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2014-12-30<br/>Publisher name: Suomen Arkitehtiliitto
Source: researchoutputwizard
Source-ID: 447
Research output: Professional › Article

A Designed Third Place as Social Learning Space in Higher Education - Case Motivaattori

General information
State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: School of Architecture
Authors: Poutanen, J.
Number of pages: 10
Pages: 688-697
Publication date: 2013

Host publication information
Publisher: IATED
ISBN (Print): 978-84-616-2661-8
Links:
http://www.inted2013.org

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2014-10-08<br/>Publisher name: iated
Source: researchoutputwizard
Source-ID: 3179
Research output: Scientific - peer-review › Conference contribution
Aidot vanhat & kopiot

General information
State: Published
Ministry of Education publication type: E1 Popularised article, newspaper article
Organisations: School of Architecture
Authors: Saatsi, P.
Number of pages: 6
Pages: 48-53
Publication date: 2013
Peer-reviewed: Unknown

Publication information
Journal: Glorian antiikki
Issue number: 3
ISSN (Print): 1238-5654
Original language: Finnish

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-10-29<br/>Publisher name: Sanoma Magazines Finland Corporation
Source: researchoutputwizard
Source-ID: 3330

Research output: General public › Article

Alvar Aalto’s Abstract Paintings and His Quest for Expressive Forms

General information
State: Published
Ministry of Education publication type: B3 Non-refereed article in conference proceedings
Organisations: School of Architecture
Authors: Hirvonen, T.
Number of pages: 14
Pages: 81-94
Publication date: 2013

Host publication information
Title of host publication: Creativity, autonomy, function in architecture , Archtheo ˚13, Conference Proceedings, December 4-6, 2013, Mimar Sinan Fine Arts University
Place of publication: Istanbul
Publisher: Mimar Sinan Guzel Sanatlar Universitesi
Editors: Catak, N., Duyan, E.
ISBN (Print): 978-975-6264-97-3

Publication series
Name: Theory of Architecture Conference

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-12-29<br/>Publisher name: Mimar Sinan Guzel Sanatlar Universitesi
Source: researchoutputwizard
Source-ID: 2311
Research output: Scientific › Conference contribution

Annikin puutalokorteli - uusi elämä asukasvetoisesti

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture
Authors: Helamaa, A.
Number of pages: 4
Pages: 32-35
Arkkitehtuurista kulttuurijournalismin kokeilukenttä

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture
Authors: Tuunanen, A.
Number of pages: 2
Pages: 16-17
Publication date: 2013
Peer-reviewed: Unknown

Publication information
Journal: Arkkitehtiuutiset
Issue number: 9
ISSN (Print): 0044-8915
Original language: Finnish

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-12-29
Source: researchoutputwizard
Source-ID: 2635
Research output: Professional › Commissioned report

Artikkeli: Kaupunkiympäristön arvot ovat hukassa?

General information
State: Published
Ministry of Education publication type: E1 Popularised article, newspaper article
Organisations: School of Architecture
Authors: Hynynen, A.
Publication date: 2013
Peer-reviewed: Unknown

Publication information
Journal: Ilkka
Original language: Finnish

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-11-29
Source: researchoutputwizard
Source-ID: 2359
Research output: General public › Article

Artikkeli: Vehreällä ehdotuksella voittoon Hyvinkään ideakilpailussa

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture
Authors: Hynynen, A., Jalkanen, R., Jarva, A.
Number of pages: 4
Pages: 24-27
Publication date: 2013
Peer-reviewed: Unknown
Can the new cosmology, cosmogenesis, serve as a basis for a shared value system in architecture? On Charles Jencks

General information
State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: School of Architecture
Authors: Passinmäki, P.
Number of pages: 5
Pages: 19-23
Publication date: 2013
Peer-reviewed: Yes

Publication information
Journal: ARQ-Architectural Research Quarterly
Volume: 17
Issue number: 1
ISSN (Print): 1359-1355
Ratings:
Scopus rating (2016): SJR 0.114 SNIP 0.136 CiteScore 0.06
Scopus rating (2015): SJR 0.1 SNIP 0.21 CiteScore 0.05
Scopus rating (2014): SJR 0.146 SNIP 0.298 CiteScore 0.07
Scopus rating (2013): SJR 0.112 SNIP 0.128 CiteScore 0.07
Scopus rating (2012): SJR 0.121 SNIP 0.105 CiteScore 0.04
Scopus rating (2011): SJR 0.14 SNIP 0.257 CiteScore 0.08
Scopus rating (2010): SJR 0.1 SNIP 0.089
Scopus rating (2009): SJR 0.1 SNIP 0
Scopus rating (2008): SJR 0.1 SNIP 0
Scopus rating (2007): SJR 0.1 SNIP 0
Scopus rating (2006): SJR 0.1 SNIP 0
Scopus rating (2005): SJR 0.11 SNIP 0
Scopus rating (2004): SJR 0.1 SNIP 0
Scopus rating (2003): SJR 0.1 SNIP 0
Scopus rating (2002): SJR 0.1 SNIP 0
Scopus rating (2001): SJR 0.1 SNIP 0
Scopus rating (2000): SJR 0.1 SNIP 0.241
Scopus rating (1999): SJR 0.143 SNIP 0.311
Original language: English
DOIs:
10.1017/S1359135513000316

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-12-29<br/>Publisher name: Cambridge University Press
Source: researchoutputwizard
Source-ID: 3103
Research output: Scientific - peer-review › Article
Erityisiä asumisratkaisuja

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture
Authors: Hedman, M., Sanaksenaho, P.
Number of pages: 3
Pages: 30-32
Publication date: 2013
Peer-reviewed: Unknown

Publication information
Journal: Arkkitehtiuutiset
Volume: 65
Issue number: 4
ISSN (Print): 0044-8915
Original language: Finnish

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-10-29
Source: researchoutputwizard
Source-ID: 2256
Research output: Professional › Article

Johdanto: Arkkitehtiuutiset Näsillä

General information
State: Published
Ministry of Education publication type: D4 Published development or research report or study
Organisations: School of Architecture
Authors: Kalakoski, I., Kuitunen, H.
Number of pages: 1
Publication date: 2013

Publication information
Publisher: Tampereen teknillinen yliopisto
Original language: Finnish

Publication series
Name: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos. Arkkitehtuurin historian julkaisuja
Publisher: Tampereen teknillinen yliopisto
Volume: 1
ISSN (Print): 2341-9865
Links:

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-12-29
Source: researchoutputwizard
Source-ID: 2459
Research output: Professional › Commissioned report


General information
State: Published
Ministry of Education publication type: B1 Article in a scientific magazine
Organisations: School of Architecture
Authors: Chudoba, M.
Number of pages: 3
Pages: 74-76
Kolme tapaa korjata lähiökerrostalo : Three ways to renovate neighbourhood units

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture, Research group: Built Environment in Transition
Authors: Huuhka, S.
Number of pages: 3
Pages: 68-70
Publication date: 2013
Peer-reviewed: Unknown

Publication information
Journal: Arkitehti
Volume: 110
Issue number: 3
ISSN (Print): 0783-3660
Original language: Finnish

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-10-29<br/>Publisher name: Suomen Arkkitehtiliitto
Source: researchoutputwizard
Source-ID: 2354
Research output: Professional › Article

Lapsia liikuttava kaupunki

General information
State: Published
Ministry of Education publication type: A3 Part of a book or another research book
Organisations: School of Architecture
Authors: Hynynen, A., Kyttä, M., Vasankari, T., Aittasalo, M., Broberg, A., Sarjala, S.
Number of pages: 16
Pages: 210-225
Publication date: 2013

Host publication information
Title of host publication: Ketä kiinnostaa? : lasten ja nuorten hyvinvointi ja syrjäytyminen
Publisher: Suomen Akatemia : Gaudeamus
Editors: Reivinen, J., Vähäkylä, L.
ISBN (Print): 978-952-495-316-0

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-12-29
Source: researchoutputwizard
Source-ID: 2361
Research output: Scientific - peer-review › Chapter
Moduulirakentaminen. Ratkaisumalleja tulevaisuuden asuntorakentamisen haasteisiin

Näkökulma vanhaan vaihtuu: Towards transformation

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture
Authors: Koponen, O.
Number of pages: 9
Pages: 13-21
Publication date: 2013
Peer-reviewed: Unknown

Publication information
Journal: Arkitehti
Volume: 110
Issue number: 3
ISSN (Print): 0783-3660
Original language: English

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-12-29
Publisher name: Suomen Arkkitehtiliitto
Source: researchoutputwizard
Source-ID: 2601
Research output: Professional › Article

Näsilinna 2013. Erikoiskurssi historiallisen arvorakennuksen dokumentoinnista

General information
State: Published
Ministry of Education publication type: C2 Edited books
Organisations: School of Architecture
Authors: Kalakoski, I. (ed.)
Number of pages: 98
Publication date: 2013

Publication information
Publisher: Tampereen teknillinen yliopisto; Tampereen museopalvelut / Pirkanmaan maakuntamuseo
Original language: Finnish

Publication series
Name: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos. Arkkitehtuurin historian julkaisuja
Publisher: Tampereen teknillinen yliopisto; Tampereen museopalvelut / Pirkanmaan maakuntamuseo
Volume: 1
ISSN (Print): 2341-9865
Electronic versions:
nasilinna_2013
Links:

Bibliographical note
On esipuhe<br/>Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-12-29
Source: researchoutputwizard
Source-ID: 2457
Research output: Scientific - peer-review › Anthology

Näsilinnan muutos- ja korjaushanke: rakennuksen olemus ja arvostukset
Tämä julkaisu sai alkunsa keväällä 2013 kun Pirkanmaan Maakuntamuseon rakennustutkija Hannele Kuitunen otti yhteyttä Tampereen teknillisen yliopiston arkkitehtuurin historian oppitukiin ja siellä professori Olli-Paavo Koposeen.

**General information**
State: Published
Ministry of Education publication type: D4 Published development or research report or study
Organisations: School of Architecture
Authors: Hirvonen, T.
Number of pages: 9
Publication date: 2013

**Publication information**
Publisher: Unknown Publisher
Original language: Finnish

**Publication series**
Name: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos. Arkkitehtuurin historian julkaisuja
Volume: 1
ISSN (Print): 2341-9865
Links:

**Bibliographical note**
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-12-29
Source: researchoutputwizard
Source-ID: 2312
Research output: Professional › Commissioned report

**Partial dismantling of 1960's to 80's housing estates - a sustainable holistic solution**

**General information**
State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: School of Architecture, Life Cycle Effectiveness of the Built Environment (LCE@BE), Research group: Built Environment in Transition
Authors: Huuhka, S.
Number of pages: 9
Pages: 1031-1039
Publication date: 2013

**Host publication information**
Editor: Cruz, P. J.
ISBN (Print): 978-0-415-66195-9
ISBN (Electronic): 978-0-203-79856-0

**Publication series**
Name: International Conference on Structures and Architecture

**Bibliographical note**
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-11-29
Source: researchoutputwizard
Source-ID: 2355
Research output: Scientific - peer-review › Conference contribution

**Patina herättää tunteita**

**General information**
State: Published
Ministry of Education publication type: B2 Part of a book or another research book
Organisations: School of Architecture
Authors: Kalakoski, I.
Pages: 122-124
Publication date: 2013

Host publication information
Title of host publication: Kulttuuriympäristön monet kasvot : puhetta suojelusta ja restauroinnista
Place of publication: Helsinki
Publisher: Suomenlinnan hoitokunta
Editor: Perkkiö, M.
ISBN (Print): 978-951-9437-40-8

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-11-29
Source: researchoutputwizard
Source-ID: 2458
Research output: Scientific › Chapter

Taidenäyttely aika ajast´aikaan: Naantalin taidehuone 21.5.-9.6.2013

General information
State: Published
Ministry of Education publication type: F1 Published independent work of art
Organisations: School of Architecture
Authors: Soini, K.
Publication date: 2013
Media of output: Other

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-10-29
Source: researchoutputwizard
Source-ID: 3438
Research output: Solo art production › Exhibition

Tapaus Kummatti

General information
State: Published
Ministry of Education publication type: D1 Article in a trade journal
Organisations: School of Architecture
Authors: Hagan, H.
Number of pages: 2
Pages: 71-72
Publication date: 2013
Peer-reviewed: Unknown

Publication information
Journal: Arkkitehti
Volume: 110
Issue number: 3
ISSN (Print): 0783-3660
Original language: Finnish

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-10-29<br/>Publisher name: Suomen Arkkitehtiliitto
Source: researchoutputwizard
Source-ID: 2215
Research output: Professional › Article

The extended home: On design solutions for community oriented housing

General information
State: Published
The Extended Home: On design solutions for community oriented housing

General information
State: Published
Ministry of Education publication type: B3 Non-refereed article in conference proceedings
Organisations: School of Architecture
Authors: Helamaa, A.
Number of pages: 13
Pages: 378-391
Publication date: 2013

Host publication information
Publisher: The Findhorn Foundation
Editor: Meltzer, G.
ISBN (Electronic): 978-0-9926310-0-0

Publication series
Name: International Communal Studies Association Conference
Links:

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-12-29<br/>Publisher name: The Findhorn Foundation
Source: researchoutputwizard
Source-ID: 2285
Research output: Scientific › Conference contribution

The Non-Linear City

General information
State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: School of Architecture
Authors: Partanen, J.
Number of pages: 6
Pages: 112-117
Publication date: 2013
Uusilla menetelmillä kiinni kokemukselliseen tietoon

General information
State: Published
Ministry of Education publication type: A1 Journal article-refereed
Organisations: School of Architecture
Authors: Santaoja, M., Leino, H., Chudoba, M., Bamberg, J., Nieminen, J.
Number of pages: 2
Pages: 1-3
Publication date: 2013
Peer-reviewed: Yes

Publication information
Journal: Versus
Volume: 4
Issue number: 1
ISSN (Print): 2242-3443
Original language: Finnish
Links:
http://www.ays.fi/versus/

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-12-29<br/>Publisher name: Alue- ja ympäristötutkimuksen seura ry.
Source: researchoutputwizard
Source-ID: 3361
Research output: Scientific - peer-review › Article

Villa Ornäsin 7 opetusta

General information
State: Published
Ministry of Education publication type: E1 Popularised article, newspaper article
Organisations: School of Architecture
Authors: Saatsi, P.
Number of pages: 5
Pages: 42-46
Publication date: 2013
Peer-reviewed: Unknown

Publication information
Journal: Glorian antiikki
Issue number: 3
ISSN (Print): 1238-5654
Original language: Finnish

Bibliographical note
Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2013-10-29<br/>Publisher name: Sanoma Magazines Finland Corporation
Source: researchoutputwizard
Source-ID: 3331
Research output: General public › Article

Yhteisöllisyyden siemeniä ilmassa, asiantuntijahaastattelu teokseen

General information
State: Published
Ministry of Education publication type: D2 Article in professional manuals or guides or professional information systems or text book material
Organisations: School of Architecture
Authors: Helamaa, A.
Number of pages: 7
Askeleita kohti yhteisöasumista : Selvitys yhteisöasumisen muodoista ja toteuttamisesta : MONIKKO-hanke : Moninaisten yhteisöllisten asuin- ja toimintaympäristöjen kehittämispilotit

Toursissa Ranskassa maaliskuussa 2012 sekä Berliinissä Saksassa syyskuussa 2012.

General information
State: Published
Ministry of Education publication type: D4 Published development or research report or study
Organisations: School of Architecture
Authors: Helamaa, A., Pylvänen, R.
Number of pages: 177
Publication date: 2012

Publication information
Publisher: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos
Original language: Finnish

Publication series
Name: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos. Asuntosuunnittelu. Julkaisu
Publisher: Tampereen teknillinen yliopisto
Volume: 6
ISSN (Print): 2242-4598
Electronic versions: monikko_askeleita_kohti_yhteisoasumista

Bibliographical note
Contribution: organisation=ork,ars,FACT1=1
Source: researchoutputwizard
Source-ID: 2288
Research output: Professional › Commissioned report

Exploring complex dynamics with a CA-based urban model

General information
State: Published
Ministry of Education publication type: A4 Article in a conference publication
Organisations: School of Architecture
Authors: Partanen, J.
Number of pages: 12
Pages: 257-268
Publication date: 2012

Host publication information
Title of host publication: Proceedings of CAMUSS, International Symposium on Cellular Automata Modeling for Urban and Spatial Systems, 8-10.11.2012, Oporto, Portugal
Publisher: Coimbra: Department of Civil Engineering of the University Coimbra
Editors: Pinto, N., Dourado, J., Natalio, A.
ISBN (Print): 978-972-96524-8-6

Publication series
Name: International Symposium on Cellular Automata Modeling for Urban and Spatial Systems
Publisher: Coimbra: Department of Civil Engineering of the University Coimbra

Bibliographical note
Contribution: organisation=ork,FACT1=1<br/>Portfolio EDEND: 2013-11-29
Source: researchoutputwizard
Source-ID: 5023
Research output: Scientific - peer-review › Conference contribution