

**Ziogas, V.****Memos, C.** (NTUA, Department of Civil Engineering)*Κατάκλυση Ακτής λόγω Θαλάσσιου Σεισμικού Κύματος στο ΝΑ Αιγαίο (Coastal Inundation due to a Seismic Sea Wave in SE Aegean)***Tech. Chron. Sci J.T.C.G., I**, Sep. – Dec. 2010, vol. 1, no 3, pp.15-26, tab. , 21 ref.

*A simple site-specific application is presented involving numerical simulation of tsunami propagation and runup on an island coast in SE Aegean Sea. According to historical sources seismic sea waves have appeared at least three times in the sea area between Eastern Rhodes and South-western Turkey during the past six centuries. These events seem to be of great importance amongst those reported for the broader region of Greece. Our analysis was based on a possible seismic scenario regarding the initial conditions. Appropriate software was employed for the numerical simulation of the tsunami propagation, and finally a methodology was applied for the estimation of maximum runup along the north-eastern coasts of the Island of Rhodes. The analysis resulted in an indicative inundation map which seems to agree well with existing historical descriptions of the consequences of similar events. It is evident that besides the undeniable scientific interest of tsunami generation, propagation and coastal runup, a need for developing mitigation measures is currently gaining momentum.*

(Authors)

K-W: Coastal Engineering, Seismology

**Naziris, I.***Η Εκτίμηση Διακινδύνευσης στην Πυροπροστασία της Πολιτιστικής Κληρονομιάς - Η Περίπτωση της Σιμωνόπετρας (Risk Assessment in Fire Protection of Cultural Heritage – The Case-Study of Simonopetra)***Tech. Chron. Sci J.T.C.G., I**, Sep. – Dec. 2010, vol. 1, no 3, pp. 27-40, tab. 4, 17 ref.

*The necessity of the preservation of the authenticity of the buildings of cultural heritage makes the implementation of the modern codes of fire protection practically inapplicable. In historic buildings it is not only the human life that has to be protected but the building itself as well and sometimes its contents. Fire risk assessment is a modern scientific field where multiple methods have been developed in order to analyze, assess and in some way visualize the steps to the minimization of the probability of a fire incidence and its consequence, something that consequently leads to the improvement of the fire safety of a building or a group of buildings. In the present paper one of the above methods, the hierarchical approach, is expounded and implemented in the Monastery of Simonos Petras, which is situated in Mount Athos.*

(Author)

K-W: Fire Protection, Cultural Heritage, Fire Risk Analysis

**Eleftheriadou, A.****Karabinis, A.** (DUTH, Sch. of Civil Engineering)*Κλίμακες Σεισμικής Βλάβης σε Κατασκευές Ωπλισμένου Σκυροδέματος (Seismic Damage Scales in Reinforced Concrete Structures)***Tech. Chron. Sci J.T.C.G., I**, Sep. – Dec. 2010, vol. 1, no 3, pp. 41-60, tab. 8, 27 ref.

*In the present paper the most significant damage scales are presented in order to calibrate the levels of damage based on post-earthquake surveys. The qualitative characterization of damage refers mostly to RC structures. Due to the heterogeneity of the parameters that influence the various damage scales, it is difficult to make a comparison between them and to combine statistical data derived from different sources. A correlation of the existing damage scales is presented and a new unified damage scale is proposed which is subdivided into 7 damage levels, based on descriptive terms of structural damage. The scale quantifies the severity of damage using a structural and, as well, a cost damage index. The damage levels are also presented on the typical capacity curve for reinforced concrete structures. The new scale is applied to statistical data that have been derived from previous earthquakes. The degree of damage is evaluated by using the proposed scale as well as the existing Greek method for the recording of damage. The comparison of damage estimates, using various damage scales, is thus achieved, in order to combine various existing data as well as analysis results.*

(Authors)

K-W: Damage Scales

**Tastani, S., Dervisis, A.****Pantazopoulou, S.** (DUTH, Sch. of Civil Engineering)

*Οπλισμένο Σκυρόδεμα υπό Θλίψη με ΙΟΠ Μανδύες: Αναλυτική Προσέγγιση Κονιορτοποίησης του Σκυροδέματος και Αυγισμού του Διαμήκους Οπλισμού (FRP Jacketed Reinforced Concrete Under Compression: Analysis of Concrete Compaction and Bar Buckling)*

**Tech. Chron. Sci J.T.C.G., I**, Sep. – Dec. 2010, vol. 1, no 3, pp. 61-76, tab. 1, 29 ref.

*The effective strain of FRP wraps used as confining jackets of substandard reinforced concrete members in seismic strengthening applications is studied with the objective to establish the associated plastic compression strain capacity of the encased concrete core. For imposed strains exceeding the effective value, failure owing to compressed bar buckling accompanied with FRP fracture and disintegration of concrete core has been observed. The conditions that lead to this behavior are formulated as part of an analytical model, which was validated using an experimental database. Output of the model is the compressive load carrying capacity of longitudinal reinforcement before and after attainment of instability conditions. Moreover, the influence of high confining pressure in combination with low concrete quality on failure mode due to compaction of the pore structure of the concrete material is formulated in the model. At advanced compressive strain states, concrete undergoing compaction sustains a net volumetric contraction thereby reducing the effectiveness of the passive action of the jacket which is mobilized by lateral dilation of the encased core.*

(Authors)

K-W: Reinforced Concrete, Confinement, Fiber – Reinforced Polymers, Rebar Buckling

**Grammatikogiannis, E.**

**Stratigea, A.** (NTUA, Sch. of Rural and Surveying Engineering)

*Μεθοδολογία Αξιολόγησης Εναλλακτικών Θέσεων Χωροθέτησης Αιολικού Πάρκου (Evaluation of Alternative Sites for Wind Park Location: A Methodological Framework)*

**Tech. Chron. Sci J.T.C.G., I**, Sep. – Dec. 2010, vol. 1, no 3, pp. 77-86, tab. 5, 10 ref.

*The focus of the present paper is on the evaluation of alternative wind park locations in the nomos of Boiotia, serving part of the energy demand of a new industrial area in the region of Tanagra. In this context, a methodological framework has been developed, aiming at the identification of potential wind park locations, evaluation of these locations and visualization of results obtained. Emphasis is placed on the evaluation methods capable of dealing with both quantitative and qualitative information (multicriteria evaluation) by use of the REGIME method as well as on the photo-realistic visualization of spatial data as a tool for a more realistic presentation of the outcome of any planning intervention.*

(Authors)

K-W: Wind Park, Land Use Location, Environment, Regime

**Thermou, G.** (AUTH, Sch. of Civil Engineering)

**Pantazopoulou, S.** (DUTH, Sch. of Civil Engineering)

*Σεισμική Αναβάθμιση Στοιχείων Ο.Σ. Παλαιού Τύπου με τη Χρήση Μανδύων από Μεταλλικά Υφάσματα (Seismic Upgrading of Substandard RC Members with Metallic Fabric Jackets)*

**Tech. Chron. Sci J.T.C.G., I**, Sep. – Dec. 2010, vol. 1, no 3, pp.87-104, tab. 7, 11 ref.

*This paper presents the results of an experimental investigation, where for the first time metallic fabrics (MF) have been used as jackets for seismic upgrading of reinforced concrete column specimens with substandard details. The experimental program comprised a number of square cross section cantilever specimens built at a scale 1:2 ÷ 1:3, which were tested under combined axial load and reversed cyclic lateral displacements simulating earthquake effects. Due to lack of adequate seismic detailing the specimens were susceptible to various modes of failure such as shear failure, reinforcement buckling or failure in the lap splice region. Within the framework of the present experimental research and for comparison reasons, specimens were retrofitted by both metallic fabric (MF) and composite jackets and subjected to the same loading history as their original counterparts. The results of this pilot experimental study demonstrate the higher efficacy of the metallic jackets as compared with composite jackets, in terms of strength increase and enhancement of deformation capacity.*

(Authors)

K-W: Strengthening Reinforced Concrete, Steel – Fiber Sheets, Jackets, Earthquake, Composite Materials, Upgrading

**Chatzifragkios – Makrydakīs, K.**

*Κινηματογραφικές Εκδοχές της Μελλοντικής Πόλης (Cinematographic Versions of the Future City)*

**Tech. Chron. Sci J.T.C.G., I**, Sep. – Dec. 2010, vol. 1, no 3, pp.105-122, tab. , 21 ref.

*Art in its different expressions run across the cities' history. There is an interaction between them. Art is born in the city and the city is reflected in its art and it's transformed through it to images of its future. Imaginary, utopian or not, the city appears as nodal point of development in the human odyssey in time and space. From literature to painting, from architecture to cinema one may find remarkable efforts of searching, researching and eventually representing the imaginary city of the future.*

*Cinema's audiovisual language forms continuously the bounds between real and imaginary. A film is the representation of a place which has specific time duration and also creates realistic or imaginary models of the real world. Beyond a mere setting, building or architecture, the city spreads out like a whisper, exists as a sensation without being entirely visible, more so when placed in the future, in the context of a movie, which has a certain perspective on the architecture, the urban planning, the social relationships, the political planning and the human pleasures.*

*In any case... "What thou lovest well remains"*

*(Ezra Pound, Canto 81)*

*(Author)*

K-W: City, Cinema, Dystopia, Image, Memory

### **Roubien, D.**

*Ο Ρόλος των Δημοσίων Κτηρίων στην Ανορθολογική Δημιουργία του Σχεδίου Πόλεως στην Οθωνική Αθήνα (The Role of Public Buildings in the Irrational Creation of the Urban Plan of Athens Under King Otto)*

**Tech. Chron. Sci J.T.C.G., I**, Sep. – Dec. 2010, vol. 1, no 3, pp.123-134 , tab. , 24 ref.

*In king Otto's Athens, in contrast with what happened in other European capitals, public buildings preceded the other elements of urban network. In consequence, instead of the urban plan defining their location in the city, the opposite happened. Most of the public buildings were built in locations completely different from those predicted by the general urban plans, which led necessarily to those plans' modification, so that the latter would be adapted to the buildings. Although under king George I the situation tended to a more rational relation between public constructions and urban plan, Athens, during the whole 19th century, preserved a particular relation between the urban plan's evolution and public architecture.*

*(Author)*

K-W: Athens Town Planning (1834-1864...), Urban Interventions, Topography

### **Poulakos, G. (NTUA, Sch. of Architecture)**

*Πειραματική διερεύνηση ηχομονωτικών ικανοτήτων θυρών (Experimental Investigation of Sound Insulation of Doors in Buildings)*

**Tech. Chron. Sci J.T.C.G., I**, Sep. – Dec. 2010, vol. 1, no 3, pp.135-150 , tab. 7, 14 ref.

*The continuing rise in the environmental noise around buildings, as well as in their interior spaces, demands that the partitions have increased soundproofing ability. For this reason, it is important to construct doors with high values of weighting sound insulation index  $R_w$ . In this paper, the experimental analysis of various doors constructed with two particleboard sheets (MDF) with Formica external rendering are presented and analysed. The two sheets are internally interconnected with horizontal elements made of particleboard, whereas the air gap between them is filled with glasswool insulation. These doors have an  $R_w$  value that is higher than ordinary doors, but still not satisfactory. The addition of lead sheets has as a result the production of doors with sufficient soundproofing ability. The additional sealing with specific mastic of the lower part and of the perimeter of the examined doors did not reveal, experimentally, an increase in their soundproofing ability. This means that sealing of the gaps between the door and its frame was adequate. The paper also presents experimental results concerning double doors, which were derived from the combination of the simple doors that were measured. These doors demonstrate very high values of  $R_w$ .*

*(Author)*

K-W: Sound Insulation

### **Parthenopoulos, K., Parthenopoulou, S.**

*Μέθοδοι Προσδιορισμού – Οριοθέτησης, Ανάδειξης και Αξιοποίησης των Ιστορικών Κέντρων των Πόλεων (Methods for Identifying, Locating, Renewal and Developing of Historic City Centers)*

**Tech. Chron. Sci J.T.C.G., I**, Sep. – Dec. 2010, vol. 1, no 3, pp.151-162, tab. , 17 ref.

*City Authorities try to designate an area within their cities to enforce on administrative rules and legislative measures in order to protect*

them. In the same way they regulate building and land use. The ways we usually identify central parts of cities as historic city centres are random and non successful. They have not been till now scientific methods for identifying and protecting by administrative or legislative actions those areas within city centres. Since 1990 there has been an increasing interest for the historic centres of cities and strategies have been exploited to protect and develop such areas. First step in the process of planning and design for these areas is to identify and designate them. There are many methods for that. The authors have discovered and classified those existing methods in four groups. Two representative methods from the last two groups have been experimentally performed in identifying the historic centre of the city of Veria. Experimental results have shown that the two methods, which have been applied lead to the same outcome. Therefore one can safely use those methods for identifying historic city centres.

(Authors)

K-W: City Center, Historic Center, City Core, Cultural Heritage, Designation Methods

**Sidiropoulos, G.** (University of the Aegean, Department of Geography)  
**Tsilimigkas, G.**

*Το Ζήτημα της Αστικής Βίας : Η Περίπτωση της Αθήνας (The Urban Violence Question: The Case of Athens)*

**Tech. Chron. Sci J.T.C.G., I**, Sep. – Dec. 2010, vol. 1, no 3, pp.163-174, tab. , 27 ref.

Urban violence is an important factor in the function of urban areas. This became apparent in the 1960s, when measures were being taken against the urban violence that had appeared in some places, mainly in depressed neighborhoods in the USA and Europe. During the last 20 years we have observed in many cases an increase in urban violence. Urban violence is strongly related to the structure, the organization and the function of cities, evolving in a constant way. Here we attempt to analyze the urban violence phenomenon at an international and national level and to develop a better understanding of how this phenomenon influences the way cities function.

(Authors)

K-W: Urban Violence, Violence, Urban Space, Urbanisation and Violence

**Asimos, P., Drakoulis, D.**  
**Dimitriadis, E., Stathakopoulos, P.** (AUTH, Department of Urban Planning)

*Πολεοδομική Ανάπτυξη της Περιοχής Λαχανόκηπων: Μεθοδολογία Εκπόνησης Εργασίας Πεδίου (Urban Planning Development of the Area of Lachanokipi: The Methodology for a Fieldwork Study)*

**Tech. Chron. Sci J.T.C.G., I**, Sep. – Dec. 2010, vol. 1, no 3, pp. 175-190 , tab. , 13 ref.

In modern societies, once it is made certain that the urban space does not cater for the social needs, the question of its modernization via spatial and urban planning intervention arises. The latter presupposes a space theory which is bound to social factors (i.e. a general/specific framework) and other factors (like economy, politics, ideology), but especially to the ecological environment.

On account of the urban planning development in the area of Lachanokipi in Thessaloniki (case study), a methodology for the fieldwork study is presented, and more specifically for the survey of the current situation, within the framework of the broader planning/design of this particular area that is part of the Municipality of Thessaloniki and of Menemeni. The area is located in the western borders of the city – as that extends beyond its historical centre – adjoins the port, and the environment there is evidently burdened, while important non-local motor and rail axes traverse it. On the other hand, there is a relatively small number of buildings in the area, and it appears to be an important developmental financial pole for the whole northern-Greek financial sector, which can accommodate tertiary activities, and not just those, at the city level.

The urban planning team, which in this case also includes economists, lawyers and other technical scientists, has decided to present the detailed course of the survey of the current situation, contributing, thus, to the theoretical recording of a highly significant stage in fieldwork study, which often goes uncommented upon or even unnoticed in the pertinent bibliography.

(Authors)

K-W: Urban Planning