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STATE-OF THE-ART OF THE PROCESS OF RETURNING TO FUNCTION OF AGED AND/OR NOT-IN-USE BUILDINGS

BY

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Abstract. The concern to return to function of buildings in general and of not-in-use buildings especially has become a topic during the last decades, having the purpose of bringing such constructions back in the public use. Constructions that form, among others, the physical frame of everyday life and which often have a remarkable architectural image, need to be adapted to the changes in society which put their stamp on them. Empirically built sometime in the past, built based on intuition and experience and tradition conveyed from one generation to another, constructions have evolved in time in all aspects: architecture, structural design, erection technology. Modern developments in technology could not be possible without the contribution of predecessors, among which Vetruvius, Leonardo da Vinci, Galileo Galilei, Isac Newton, Daniel Bernoulli, Robert Hooke, Claude-Louis Navier, Dmitri I. Juravski, and others. By defininition, returning to function of a building involves the reconciliation of the desire to continue, by keeping building structure and image with using the building according to the new functions. The potential of reusing a building depends to a large extent on the constructive qualities and volume structure of a building.

Keywords: constructions; technological processes; traditions; deterioration; reconversion.

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1. Introduction

In the course of the time, constructions underwent significant changes with regard to their functionality: Roman temples became Christian cult houses of God, English manors were transformed into dwellings or hotels, factories were changed into market areas or offices, industrial offices became offices, etc.

Together with the improvement of technological processes, new rooms had to be set up, in agreement with modern demands. Progress and the need to adapt to the present-day requirements of the society, to the modern norms and technologies are listed among the causes that determine the functional transformation of the constructions.

If in the past bringing back into operation and function of the buildings did not take into account their history and character, nowadays, constructions are treated with a view of reusing them only after becoming aware of the values of the past: "by old buildings we mean not only old constructions of museums, but also a wide range of buildings with no patrimony value, even their ruins" J. Jacobs, Death and Life of a Great American Cities.

In Romania, constructions bear very old traditions. Up to the discovery of reinforced concrete (J. Monier, 1867), other materials were used: wood natural stone, brick, lime mortars etc., and after the introduction of reinforced concrete calculation methods also improved leading to the structural diversification of constructions.

2. State-of-the-Art of the Research in the Field

As time went on, the majority of the countries have had to face the presence of aged and/or not-in-use (condemned) buildings, requiring measures to rehabilitate/consolidate them so that they could be used in conditions of structural safety. At national level, there is no statistics for the buildings not-in-use or having various stages of deterioration.

a) One of the world wide known cases of functional reuse occurred in the 19th century in France: Versailles Palace becomes National Museum. The Versailles Palace (Chateau de Versailles) is one of the largest and sizable castles in the world. Having over 2100 windows, 1250 fireplaces and 67 interior staircases, The Chateau of Versailles is one of the most attractive touristic points in France (Fig. 1) (http://www.tvl.ro/turism/100-Paris-Orasul-Luminii/obiectiv-palatul-versailles.html). The palace was the home of the French kings until 1789, anul 1789 (Fig. 2) (http://www.tvl.ro/turism/100-Paris-Orasul-Luminii/obiectiv-palatul-versailles.html).

Fig. 1 – The Versailles Palace
http://www.tvl.ro/turism/100-Paris-Orasul-Luminii/obiectiv-palatul-versailles.html

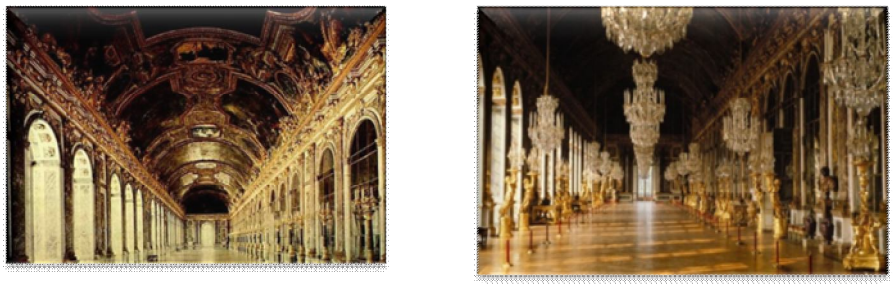

Fig. 2 – Chateau de Versailles
http://www.tvl.ro/turism/100-Paris-Orasul-Luminii/obiectiv-palatul-versailles.html

b) In Romania, a good illustration is the Văcăre□ti Monastery, built in the interval 1712-1722, and which was used as a prison for the period between 1864 until 1973 (Fig. 3) (http://www.crestinortodox.ro/biserici-manastiri/manastirea-vacaresti-87587.html).

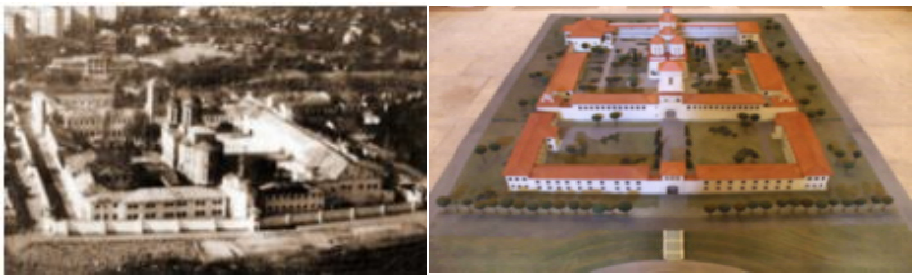

Fig. 3 – the Văcăreşti Monastery
http://www.crestinortodox.ro/biserici-manastiri/manastirea-vacaresti-87587.html.

Beginning with the 1970's, the concern for the reconversion of the condemned buildings to put them in the public use has become an interest in

industrialized countries. Various phenomena, such as energy crisis, economic recession, micro and macro – economic losses led to the opportunity of making society aware of the need to save on resources (both natural and built resources) rendering them from buildings not in use of unusable at all into constructions with new functions.

In the majority of the European countries, not-in-use industrial areas are situated in the historic centers of the cities or in their neighborhood, bringing added if such constructions are turned back to life and use. All over the world, mainly in developed countries, numerous plants, warehouses or docks have been changed into dwelling buildings, office buildings, business premises, schools or theaters.

The end of the 18th century and the first decades of the 19th century are stamped by the Industrial Revolution. The new production technologies require open span spaces, and the perfection of the production process brings about the need to openness. The Industrial Revolution led to a considerable increase of the urban space by developing residential areas and also a new functional type of building: the factory. As for the built and arranged environment, it contains components in different stages of degradation and damage. This category contains components that are able to take over industrial activities (the former or derived forms of activity) or components that need to alter their destination (preferable as the local development requires it).

At national level, industrialization follows the same pattern as that in other European countries, starting after the Unification of the Principalities in the second half of the 19th century, year 1859 being the year that signals the beginnings of industrial branches of mining, metallurgy, transport and machine building (Fig. 4).

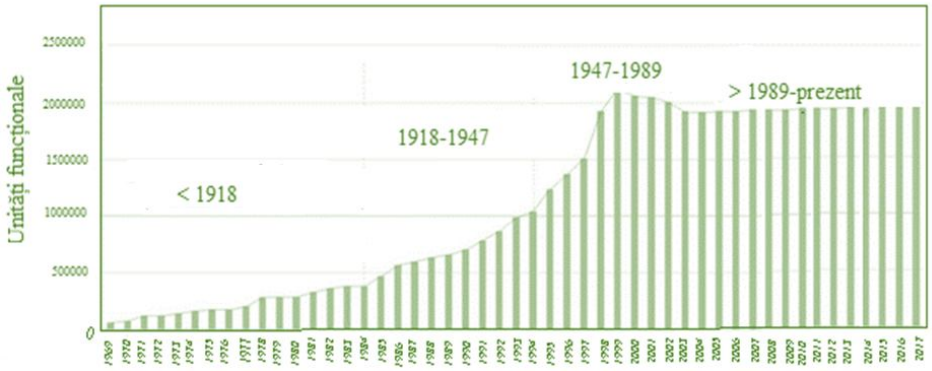

Fig. 4 – The stage of industrialization in Romania.

Following the political, legislative and economic situation from Romania, the interval 1989-2013 was dedicated to privatization, decentralization and destructuring of numerous industrial units.

a) At the end of the 19th century and beginning of the 20th century, Bucharest city turned into the main industrial area of the country, and famous industrial centers appeared such as the Malaxa Plants (Fig. 5) (http://www.george-damian.ro/galerie-foto-uzinele-malaxa-in-imagini-1022.html), Customs Warehouse (Fig. 6) (http://rezistenta.net/2009/06/vama-bucuresti-antrepozite.html), Gambrinus Brewery (Fig. 7) (http://www.locuriuitate.com/2012/12/berea-bucurestenilor_10.html), Rahova Brewery, Fig.8 (http://www.panoramio.com/photo/3440765). Today they do not exist anymore as factories.

Fig. 5 – Malaxa Plants http://www.george-damian.ro/galerie-foto-uzinele-malaxa-in-imagini-1022.html.

Fig. 6 – Customs Warehouse http://rezistenta.net/2009/06/vama-bucuresti-antrepozite.html.

Fig. 7 – Gambrinus Brewery http://www.locuriuitate.com/2012/12/berea-bucurestenilor_10.html.

Fig. 8 – Rahova Brewery http://www.panoramio.com/photo/3440765.

b) In Cluj-Napoca, the concern for the reconversion of partially or totally condemned buildings began only recently, several examples of condemned buildings with a good service capacity which are worth rescuing and reintegrating are: Clujana Factory (Fig. 9) (http://industrial-heritage.ro/ro/node/13), Carbochim Factory (Cluj Electrocarbon Enterprise) (Fig. 10) (http://industrial-heritage.ro/ro/node/13), Remarul 16 Februarie (Fig. 11)

(http://industrial-heritage.ro/ro/node/13), CUG (Heavy duty Equipment Company/Combinatul de Utilaj Greu) (Fig. 12) (http://industrial-heritage.ro/ro/node/13), Napochim (Fig. 13) (http://industrial-heritage.ro/ro/node/13), Fimaro (Red Metal) (Fig. 14) (.http://industrial-heritage.ro/ro/node/13).

Fig. 9 – Clujana Factory
http://industrial-heritage.ro/ro/node/13.

Fig. 10 – Carbochim Factory (Cluj Electrocarbon Enterprise)
http://industrial-heritage.ro/ro/node/13.

Fig. 11 – Remarul 16 Februarie
http://industrial-heritage.ro/ro/node/13.

Fig. 12 – CUG (Heavy duty Equipment Company/Combinatul de Utilaj Greu)
http://industrial-heritage.ro/ro/node/13.

Fig. 13 – Napochim
http://industrial-heritage.ro/ro/node/13.

Fig. 14 – Fimaro (Red Metal)
http://industrial-heritage.ro/ro/node/13.

3. Factors Favoring the Phenomenon of Returning to Function of Buildings

The recuperation by efunctionalization of the buildings is needed and making opportune by the dynamics of the national economy, by the modifications in the typology of cities and towns, as well as by a set of

economic and social phenomena typical of European Union and the entire world, in general.

At national level, there has been made a draft of a "Guide for the recuperation by reconversion of buildings, precincts, production and warehouse areas, that are abandoned and/or functionally incompatible" produced by INCD – URBAN PROIECT (*Ghid privind recuperarea prin reconversie a clădirilor, incintelor şi zonelor de producţieşi depozitare, abandonate şi/sau incompatibile funcţional, în concordanţă cu necesităţile de dezvoltare urbană, – MINISTERUL LUCRĂRILOR PUBLICE, TRANSPORTURILOR ŞI LOCUINŢEI Redactarea a III-a, EXECUTANT COORDONATOR: INCD – URBAN PROIECT, 20 mai 2002*) with a view to put the bases for the regulations in the field of land arrangement and urbanism.

The Guide presents reconversion in the following terms:

a) reconversion itself, meaning it requires a change of destination;

b) temporary reconversion: the possibility and capacity of a built stock to be used concomitantly with different programs and functions (for instance, in city cultural areas which are not used during the week);

c) coherent reconversion: logical reconversion, which passes through all the steps, from design to approval and which considers the architecture and siting of the building, interconditioned by inter and intra area relationships;

d) urban renovation, whose aim is the modernization of an urban set or a building, capitalizing on specific local elements.

The refunctioning of aged and/or condemned buildings is a complex action that defines the manner in which a structure is brought back to life, through procedures that attempt at valorizing its initial qualities as well as possible (Fig. 15).

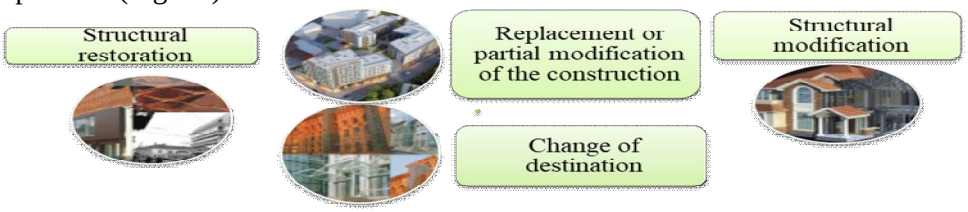

Fig. 15 – Refunctionalization of buildings.

The transformation of a construction should take into consideration its character, the main interest being focused upon the possibility of giving the construction a new chance of life. The intervention must be flexible so that a balance between old elements' conservation and the adaptation to present-day standards is provided.

Flexibility is important in providing new facilities to the building, building spaces that are adaptable to the new requirements, supported on plans and control policies bringing added value in the construction transformation process. The major objectives of a rehabilitation process have their origin in defining exactly the terms taking part: from the diagnosis/identification of the situation up to evaluations and constant verifications of results and outcomes, to identifying method and means to intervene, be they engineering, administrative and legal, to be applied during the process.

Basic principles in the rehabilitation process of a building (Fig.16) (http://www.revistaconstructiilor.eu/index.php/2011/10/18/in-actualitate-reconversia-functionala-a-cladirilor-i/#.WgK0XtR95kg).

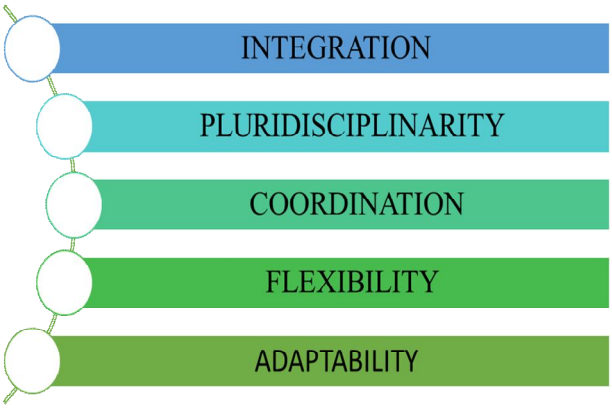

Fig. 16 – Basic principles in the rehabilitation process of a building http://www.revistaconstructiilor.eu/index.php/2011/10/18/in-actualitate-reconversia-functionala-a-cladirilor-i/#.WgK0XtR95kg.

4. Conclusions

As time passes, the majority of the countries have to face the large number of old and not-in-use buildings that require measures to rehabilitate/consolidate them if they need to be used in conditions of structural safety. Progress and capacity to adapt to the present-day requirements of the society are causes the lead to the functional transformation of the constructions.

The need to update the present build stock and the urban structural adaptation to the society demands require a study to view the possibility of rehabilitating/reconversion the aged buildings to economic and safety parameters typical of present-day service.

Such a situation has led to setting a new field of activity consisting in making expert's reports on aged and damaged buildings, rehabilitating them and

also to establishing, in this context, of a number of technical instruments that are dedicated to the facilitation of this process.

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STADIUL ACTUAL PRIVIND REFUNCŢIONALIZAREA CLĂDIRILOR VECHI ŞI/SAU DEZAFECTATE ÎN ROMÂNIA

(Rezumat)

Preocuparea pentru refuncţionalizarea clădirilor în general şi a celor dezafectate în special cu scopul readucerii lor în circuitul public a început să prindă contur în ultimele decenii.

Construcţiile, care constituie, printre altele, cadrul fizic al vieţii cotidiene, deseori cu un potenţial arhitectural remarcabil, trebuie uneori adaptate transformărilor apărute în societate, transformări care îşi impun astfel amprenta asupra lor. Cândva

construite empiric, pe baza intuiției şi experienței transmise din generație în generație, prin tradiții, construcțiile au evoluat în timp sub toate aspectele: arhitectură, concepție structurală, tehnologie de execuție.

Dezvoltarea actuală privind tehnica modernă nu ar fi fost posibilă fără contribuția unor promotori ca Vetruvius, Leonardo da Vinci, Galileo Galilei, Isac Newton, Daniel Bernoulli, Robert Hooke, Claude-Louis Navier, Dmitri I. Juravski, ş.a.

Prin definiție, refuncționalizarea implică reconcilierea între dorința de continuitate, adesea cu păstrarea structurii şi imaginii clădirii şi posibilitățile de utilizare corespunzătoare unei noi funcțiuni. Potențialul de reutilizare al unei clădiri depinde în mare măsură de calitățile constructive şi de compoziția volumetrică a acesteia.