

# Deserted Dilapidated Zombie Masonry Buildings: Are They Architectonic Rubbish or They Transmogrify a Role With Time?

Jovana Jovanovic<sup>1</sup>, Suzana Koprivica<sup>2</sup>

<sup>1</sup>Faculty of Civil Engineering and Management, University Union Nikola Tesla, Belgrade 11000, Serbia.

<sup>2</sup>Faculty of Civil Engineering and Management, University Union Nikola Tesla, Belgrade 11000, Serbia.

Received Date: 13 September 2021

Revised Date: 14 October 2021

Accepted Date: 26 October 2021

**Abstract** - Nowadays, a lot of care is imparted to the aesthetics of surroundings. Buildings can be sighted as material banks," and a lot of foreign governments and funds are leveraging investments in buildings' adaptive reuses and refurbishments. In a discrepancy between removal and new, adaptive reuse of a building, many of them are devoured by nature. Deserted dilapidated masonry buildings are left to the time and become the natural habitats for many creatures. This manuscript peeks into the pieces of evidence (deserted, dilapidated masonry buildings live) from the reality and scientific literature and tries to create a bond between the two of them. In that way, a person is conscious of how much these buildings are consumed and how much they are around us.

**Keywords** - leveraging investments, buildings adaptive reuses, deserted, dilapidated masonry buildings, natural habitats, a bond.

## I. INTRODUCTION

Zombie, deserted buildings adorn the surroundings. In 2010 the city of Philadelphia had approximately 40 000 vacant properties, with over 3 000 abandoned buildings. Void properties in Philadelphia cost over 20 million dollars yearly in maintenance and 2 million yearly of uncollected property taxes [1]. For example, New Jersey's apprehension of abandoned buildings signifies to have legally uninhabited property from six months and on [2]. Ramshackle and abandoned buildings are inter alia a significant part of the architectonic patrimony of Italy. Causes of buildings' abandonment can be endless: mortgages, unpaid bank loans, arrears as taxes and tax supplements, fines such as a fine for not boarding up the openings, brownfields, unbearable leakings, debris from floods, other intoxications of surrounding lands.

This manuscript peeks into naturally devoured, dilapidated masonry buildings, which become new natural habitats and settlements of nature. They fit in the wilderness and greenery of nature, not yet demolished but waiting for a Restauration, re-directing and re-purposing of its role.

## II. THE ARCHITECTONIC PATRIMONY

In exploring the architectonic patrimony "or the, architectural heritage", one of the main issues is the building typology (architectural style). Thus, for example, in Brazilian architecture, the typology or the architectural style of Brazilian domestic houses can be distinguished. The Brazilian domestic houses with prominent architectural styles are door-and-window houses, lateral entry houses, central-corridor houses, little-palace houses, sitting-dog houses, etc. [3]. Architecture always appears through new manifestos (cults, installations) so as the architectonic patrimony has new offspring.

The conservation of the architectonic patrimony supposes the visualization and valorization of the building's value and other buildings' architectonic benchmarks. It must be determined what to conserve in the whole of the building, whether it is: building's volume, facade, openings, partition walls' layout, brightness, and shade, etc. [4].

The buildings assigned to the architectonic patrimony cherish their conspicuous identity with all its attributes. Some buildings which belong to the architectonic patrimony (architectonic legacy) are characterized by their grandeur, whilst the others are pretty plain constructions. The mere conservation of, architectural heritage" buildings depends on whether it is, good-condition" heritage building or, bad-condition" heritage building, i.e., from the initial condition of the building. It is more often easier and cheaper to turn down a bad-condition" building, rather than leveraging investments in its refurbishment and repair or restoration [5].

Adaptive reuse of architectural heritage" buildings is often performed to save and promote cultural tourism. The entire villages with valleys show the sustainability of one certain architectural style (of roofs, staircases, etc.).

The significant, architectural heritage" buildings are also dwellings of famous literates across the globe, and therefore particular attention is dedicated to the restoration of such objects.

From the 1960s, the focus was on the architectural past, followed by the preservation of historical urban, suburban areas, and other cultural landscapes [6].

By 2010 more than 110 towns of China were crowned with the title, Historically and Culturally Famous City", from World Heritage Organization (WHO) [7].



### III. URBAN ECOLOGY AND ZOMBIE DESERTED BUILDINGS

The urban environment can be classified as an anthropogenic biome, so-called *antrom*, or the biome of intensive land use. Urban ecology and high vegetation abundance in the urban settlements make mostly non-aboriginal herbal species (creepers, lianas, grassland, shrubs, woody herbs). These non-aboriginal herbal species account for 28-40 % of urban flora across the globe [8]. Urban ecology explicitly digests and treats deserted, dilapidated masonry buildings as benchmarks of worn-out urban metabolisms. In the urban land environment, more fern species inhabit walls as informal, unconventional habitats [9].

On a yearly basis, buildings account for approximately 36 % of global energy use and 39 % of energy-related carbon dioxide emissions. Embodied carbon of buildings (in buildings) accounts for approximately 11 % of carbon dioxide emissions.

Urban spontaneous vegetation (USV) is defined as microsites or habitats with colonized plant species without any cultivation on the vacant land [8]. Plant species on the walls cool down the extrinsic substrates of building walls, increase the building energy efficiency, retain the water surplus and make the intrinsic living area thermally comfortable.

In the urban contexts, deserted, dilapidated, "ghost", masonry buildings usually belong to ex-industrial, architectural patrimony. Those are mainly factories that did not resist the ravages of time [10].

It has been found that the refurbishments and adaptive reuse of underutilized or deserted, dilapidated buildings not only diminish its ecological footprint but help the circular economy (product) supply chain approach [11]. Apart from a zombie, masonry buildings, and such suburbs, there are entire, rust-belt "cities that need new urban morphologies [12].

Vacant land, ensured by demolishing zombie, dilapidated masonry buildings, serves for local, urban food growing and agriculture [13].

Zombie, deserted masonry buildings excel by the decommissioning of their primary inhabitancy role and can be on a waiting list for a repurposing. There is a very little number of new buildings, approximately 1 % a year, and it is no wonder that zombie buildings greatly exist and surround us. A lot of European building stock is fairly old, with more than 40 % built before the 1960s and 90 % built before the 1990s [14].

There are a few criteria that need to be met in exploring the repurposing of a zombie masonry building, and those are: fitting in the existing landscape, structural similarity with other buildings, storeys of the building, perimeter, openness to the outdoor, fenestration, accessibility, sustainability, eco-friendliness, liveability, etc.

The conservation of architectural patrimony buildings is significant because of the nurturing bond to the provenance and local community as well as guarding of other values of a building (historical, cultural, aesthetic, touristic, etc.) [15]. So forth in the worldwide praxis, the

wool stores are transmogrified into apartment buildings, breweries, and hospitals into factories, hotels into schools, office buildings in commercial buildings and research institutes, etc.

In Fig.(1-7) below, we were given photos of one decrepit building. That is a deserted, dilapidated zombie building, mainly masonry with some stone elements. The building even has wooden girders, as girders of the mezzanine ceiling. It is a publicly neglected building, which in this condition, is more like architectonic rubbish waiting for demolition.

The interesting fact is that the building is situated in one of the main streets of the city downtown and occupies the front row of the street. The building is in proximity to the city theatre and some other important city institutions. It is probably deserted because of glitches, unpaid taxes, bad maintenance, etc. In existing conditions, the interior of the zombie building is overgrown in grassland, lianas, and other kinds of herbs. According to this case, in the transition between being a pile of architectonic rubbish and ultimate demolition, the building transmogrified a primordial, habitancy role into the city garden as natural habitat.

Practically, nature besieged deserted, dilapidated, zombie buildings, and nature is in the symbiosis with the building. Even woody herbs sprout from the bottom surface of the building. Such building exemplars are uncategorized categories of buildings and must be treated because otherwise, they are dysfunctional and endanger the aesthetics of one city landscape. The rusted, washed-out facade of that building does not match with the facades of other buildings in the street row.





**Fig. (1-7) Live insight into the deserted, dilapidated zombie masonry building situated in the downtown of the city (author's source).**

#### **IV. DEMOLITION OF A BUILDING STOCK**

Buildings' wreckages and debris lead to building demolitions and removals and thus to intensifying urbanizations of districts, suburbs, small towns. For example, since Chinese political reform and opening-up in 1978, China has been subjected to huge urbanization. By the end of 2017, the urbanization ratio of China stood at 58.5 % [16].

Lately, newer and newer demolition techniques have popped up, and the demolition costs depend on distinctive variables: labor costs, material costs taking into account salvaged materials, costs of machinery accountable for dismantling (demolition), environmental amends, and other administrative costs [17].

Global construction rates are anticipated to rise by 35 % by 2030, while the recycling of construction and demolition waste has already reached the target of 70 %. Referring to the scientific literature, there are substantial differences between public estimates and archived statistical data on demolished floor areas.

In the UK, the average demolition cost of a small detached house (80-120 m<sup>2</sup>) is approximately 6750£, whilst for a large detached house (200-250 m<sup>2</sup>) is approximately 20000£.

In France, the buildings' collapses by explosives (as an express demolition technique) are mostly used. One occurrence that testifies to that is the Monmousseau" building's collapse in a pile of rubble, which is in order to execute the district's second phase urban renewal in Lyon, France.

#### **V. CONCLUSIONS**

The particular issue of this manuscript is how to address properly deserted, dilapidated zombie masonry buildings that surround us. They are part of the scenery and not rarely coexist with nature. This manuscript discusses the case when the primordial role of these buildings is forgotten, and they become a wilderness and a shelter. Should they exist a long (er) time in such a manner? This advocates emergency ventures to resolve the presence of such buildings in modern, up-to-date quarters because they uglify the surroundings.

## REFERENCES

- [1] G.Kim, The Public Value of Urban Vacant Land: Social Responses and Ecological Value, MDPI Journal Sustainability, 8 (2016) 1-19.
- [2] J.M.Shane, The Problem of Abandoned Buildings and Lots, Technical Report, (2012) 1-81.
- [3] S.Jantzen, A.L.C.Oliveira, L.B.Almeida, J. Silveira, C.P.Antonio, Architectural Patrimony in Urban Areas: Methodology and case studies of the South of Rio Grande do Sul, Brazil, Conference Paper, (2010) 1-21.
- [4] T.T.Del, S.B.Sedghpour, K.S.Tabrizi, The semantic conservation of architectural heritage: the missing values, Heritage Science, Springer Open 8 (2020) 1-13.
- [5] N.Azhari, E. Mohamed, Public Perception: Heritage Building Conservation in Kuala Lumpur, Procedia – Social and Behavioral Sciences 50 (2012) 271-279.
- [6] E.M.Embaby, Heritage conservation, and architectural education: ' An educational methodology for design studios ', HBRC Journal 10 (2014) 339-350.
- [7] G. Zhu, China's architectural heritage conservation movement, Frontiers of Architectural Research, 1 (2012) 10-22.
- [8] B.C.Riley, I.K. Perry, K.Ard, M.M. Gardiner, Asset or Liability? Ecological and Sociological Tradeoffs of Urban Spontaneous Vegetation on Vacant Land in Shrinking Cities, MDPI Journal, Sustainability, 10 (2018) 1-19.
- [9] C.Chen, L. Mao, Y. Qiu, J. Cui, Y. Wang, Walls offer potential to improve urban biodiversity, Scientific Reports, Nature research, 10(2020) 1-10.
- [10] M.Bottero, C. Alpaos, A. Oppio, Ranking of Adaptive Reuse Strategies for Abandoned Industrial Heritage in Vulnerable Contexts: A Multiple Criteria Decision Adding Approach, MDPI Journal, Sustainability, 11 (2019) 1-18.
- [11] G.Foster, Circular economy strategies for adaptive reuse of cultural heritage buildings to reduce environmental impacts, Resources, Conservation & Recycling, Elsevier Journal, 152 (2020) 1-14.
- [12] F.P. Cherchi, Adaptive Reuse of Abandoned Monumental Buildings as a Strategy for Urban Liveability, Athens Journal of Architecture, 1 (2015) 253-270.
- [13] M.M. Gardiner, E.C. Burkman, P.S.Prajzner, The Value of Urban Vacant Land to Support Arthropod Biodiversity and Ecosystem Services, Environmental Entomology, 42 (2013) 1123-1136.
- [14] I.Artola, K. Rademakers, R. Williams, J.Yearwood, Boosting Building Renovation: What potential and value for Europe? European Parliament Report, (2016) 1-72.
- [15] Y.S.Mehr, H.Skates, G. Holden, Adding more by using Less: Adaptive reuse of wool stores, Procedia Engineering, Elsevier Journal, 180 (2017) 697-703.
- [16] K.Xu, Q.G Shen, G.Liu, I. Martek, Demolition of Existing Buildings in Urban Renewal Projects: A Decision Support System in the China Context, MDPI Journal, Sustainability ,11 (2019) 1-22.
- [17] C.Liu, B. Lyle, C. Langston, Estimating Demolition Costs for Single Residential Buildings, The Australian Journal of Construction Economics and Building, 3(2015) 33-42.