

TENDENCIES OF CONTEMPORARY BUILDING REHABILITATIONS IN SPAIN: THE EVALUATION OF THE PRACTICE IN THE NEW MILLENNIUM BASED ON FUNCTIONAL TRANSFORMATIONS

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Tendencias de las rehabilitaciones contemporáneas de edificios en España: la evaluación de la práctica en el nuevo milenio basado en transformaciones funcionales

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Abstract

The paper analyses building rehabilitations, a topic that came into the foreground all over Europe in the last decade, from the perspective of functional transformations. The focus area of the research is Spain, where the number of internationally published contemporary interventions on historic buildings is especially high that allows the systemization and the detection of tendencies. The investigation concentrates on the characteristics of functional changes, analyses the transformations of historic functions and the frequency of new functions installed through rehabilitation. The tendencies also illustrated by diagrams are based on a collection of approximately 500 building rehabilitations presented in internationally known publications. The detection of these trends not only facilitates the evaluation and systematization of interventions but also provides patterns for new rehabilitations.

Resumen

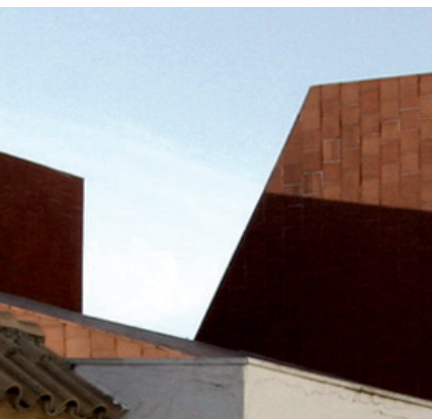
El artículo analiza las rehabilitaciones de edificios —un tema que salió a la palestra en toda Europa en la última década— desde la perspectiva de las transformaciones funcionales. El área de enfoque de la investigación es España, donde el número de intervenciones contemporáneas publicadas en edificios históricos es especialmente alta y por eso permite la sistematización y la detección de tendencias. La investigación se concentra en las características de los cambios funcionales, analiza las transformaciones de funciones históricas y la frecuencia de las nuevas funciones instaladas a través de las rehabilitaciones. Las tendencias también ilustradas por diagramas se basan en una colección de aproximadamente 500 rehabilitaciones presentado en publicaciones de renombre internacional. La detección de estas tendencias no sólo facilita la evaluación y sistematización de las intervenciones, sino también ofrece modelos para nuevas rehabilitaciones.

Keywords

Building rehabilitation, Change of function, Contemporary architecture, Monument preservation, Spain.

Palabras clave

Rehabilitación de edificios, Cambio de la función, Arquitectura contemporánea, Conservación de monumentos, España.



HISTORIC BACKGROUND OF BUILDING REHABILITATIONS

The topic of building rehabilitation as a trend of contemporary architecture came into the foreground in the last decades¹. Though the concept of conversion is of the same age as architecture itself, no particular importance was attached to it for long, historic buildings were treated as a facility, a pattern or even as building material that are free to be developed according to contemporary demands and possibilities. The value approach evolving during the 19th century and later the institutionalized monument preservation of the 20th century concentrated only on buildings of special significance, the strict principles initially supported primarily individual protection. The standard approach required in cases of particularly valuable, protected buildings was even enhanced by the professional/social/political attention to monuments².

«Before the industrialization the architectural conversion was an economical need and a cultural norm. However, the era of modernism idealized the concept of the new changing it into the symbol of progress and prosperity»³. Modernism can be characterized – arising from the cult of creative individual – with the complete dissociation of architectural design and monument preservation, where design was considered as the exclusive area of architectural self-realization. «The difficult relation that Modern architecture kept since its origins with history radically determined the attitude that the architects adopted during most of the previous century, far from the concept of restoration and renovation of monuments as strange and outsiders fields to the idealism of the new architecture. (...) The concept of the *tabula rasa* related to the Modern Movement used to consider historic monuments as isolated facts, while the rest of the inherited buildings from the past had to be replaced»⁴. This distancing is well illustrated in the Athens Charter created with the attitude of Modernism in 1931: the completion of a monument is comprehended as an artifact on its own identifying authenticity with distinctness⁵ (Fig. 01).

The concept of built heritage extended in the 1960s when the preservation of buildings became not just a cultural but also a social aim, in consideration of urbanism, triggered by the controversial modernist city developments/demolitions⁶. The claim for the preservation of the historic city structure and for its integration appeared beyond the individual protection of buildings that could only be achieved through reuse

and functional transformation. Nowadays instead of protected monuments a much broader concept, the term of built heritage is the new object of interventions, among which the distribution of age, function, uniqueness or architectural value of the buildings is more differentiated. The variety of the managed artifacts resulted in changes of methodology as well: beside classical reconstructions more *flexible* interventions, methods based on contemporary architectural trends have become more significant⁷.

Similarly to Europe, built heritage of Spain was for long considered as consumer goods and not as a subject of long-term, continuous use; the protection of each building was decided selectively, on cultural bases, without regard to any comprehensive economic principle or social norm⁸. The new mentality of urban design that took the existing city structure into consideration appeared following the already common practice of Europe only in the 1970s, reinterpreting the historic center as part of the city which provides a new site for rehabilitation⁹.

The focus point of the reuse of buildings gradually shifted from the problem of the preservation of historic buildings towards the question of usage of existing spaces. More and more conversions have been handling the buildings not as a work of art but as a consequence of social-economic processes. Beyond the restoration of monuments of outstanding architectural/historical value, the concentrates on the entire building stock, the coherent city structure, and the combination of social, economic and environmental aspects¹⁰. The process extended itself in Europe first in the 1980s, in practice and in theory of architecture as well, and then it was overshadowed again by the impressive construction boom around the turn of the millennium. Nevertheless, since the economic crisis of 2008 rehabilitation has become one of the primary instruments of development of the restructured building industry¹¹ (Fig. 02).

This Europe-wide process occurred in Spain in a special way: the traditional style (purist approach, rejecting the means of modern architecture) of monument restoration required during the Franco regime significantly delayed the appearance of those integrated rehabilitations based on economic and social grounds¹², which can be originated in Italy, from the work of Carlo Scarpa and Franco Albini¹³. From the 1980s on drastic changes have occurred – the transformation of the institutional system of



- 01 José María Sánchez García, *Environments of the Temple of Diana*, Mérida (Badajoz), 2011. Reinterpretation of an antique sacral place through modern architectural language
- 03 Alberto Campo Baeza, *Between Cathedrals*, Cádiz, 2000/09. New public space elevated as protection above an archaeological excavation – a characteristic example of Spanish mentality towards the different layers of built heritage

Spanish monument preservation (1979 – primary role of autonomous communities in the protection of monuments, 1984 – Special Plan for Conservation and Protection about the three levels of protection, 1985 – Law of the Spanish Historical Heritage, Cultural 1%)¹⁴ paved the way for the rehabilitation of built heritage interwoven with the rediscovery of modern architecture due to the particular historical/political background.

THE FOCUS OF THE RESEARCH

Building rehabilitations in professional literature are usually approached from an esthetical-methodological perspective¹⁵ evaluating the emergence of principles of restoration or of contemporary architecture¹⁶. Similarly, numerous investigations concern the structural aspects of interventions by means of analyzing stability, authenticity or sustainability¹⁷. The exploration of functional transformations is less frequent, usually presenting the new usage of randomly selected buildings without demonstrating any comprehensive tendencies or conclusions, probably because of the enormous number of buildings related to the topic.

This study investigates the processes of rehabilitation observable all over Europe concentrating on the region of Spain, where the number of rehabilitations in internationally known architectural publications is especially high which allows the systemization and the detection of tendencies¹⁸. The data base of the research contains approximately 500 projects of building rehabilitations realized in the new millennium; high-qua-

lity examples published in Spanish or international periodicals¹⁹ (Fig. 03). Accordingly, the detected connections and ratios primarily characterize this (timely and locally defined) building stock represented in the professional literature, however, with some specification they also typify the total construction output of the country. (The nature of architectural publications also affects the frequency of samples and hence the results of the collection; for instance, the dominance of public buildings of primarily social interest is recognizable compared to dwellings of private property.)

The main methods of inquiry were data collection, systemization, and detection of tendencies followed by their visualization. By surveying the gathered information (architectural drawings, photos, descriptions) a database was created (in data management software Office Access) that contained the relevant characteristics of the projects. By means of the charts, where all the data (designer, site and province, date of the design and the construction, original and present function) was collected, it was possible to detect different tendencies. The software is also capable of visualizing the results that highly facilitates the overview – these diagrams were used as illustrations in this article. By the help of the database several different trends can be examined objectively, however, of these only the tendencies of functional transformations are introduced here. To define these changes, primal functional sections of similar significance had to be specified that are clearly distinguishable. After repeated experiments the following sections evolved: administration (city halls, courts), commerce (shops, markets),

culture (museums, concert halls, community spaces), dwelling (apartments and houses), education (schools, nurseries), healthcare (hospitals, medical clinics), hotels/restaurants, industry (factories, workshops), military (fortresses, barracks), offices, religion (churches, cemeteries), sport (sport halls, swimming pools) and transportation (stations, bridges).

This paper focuses on the characteristics of functional changes, analyses the transformations of historic functions, their adaptability and the frequency of new functions installed with rehabilitations²⁰. The research quests for the most common types of buildings that are rehabilitated (*Transformation of historic functions*), what possibilities of utilization they can offer (*Adaptability of historic spaces*) and finally what functions are most frequently installed into abandoned or obsolete buildings (*Frequency of new functions*). The tendencies also demonstrated by diagrams not only facilitate the evaluation and systematization of interventions but also provide patterns for new projects of rehabilitation.

TRANSFORMATION OF HISTORIC FUNCTIONS

The investigation of building rehabilitations clearly demonstrates the functions to be converted most commonly: more than the two-thirds of rehabilitated buildings had originally the function of dwelling, industry, religion or military. This distribution is affected, among others, by the pace of obsolescence (Fig. 04). The slow transformation of certain functions is often a natural process when the changes of technology and infrastructure are defined by 'functional tradition'²¹. For instance, this organic development determined the evolution of dwellings through the centuries.

However, a more complex issue is the drastic change or disappearance of functions due to crucial social/economical processes. The European socio-political systems and methods of economic production were always characterized by constant change, nevertheless, this change undeniably gathered pace in the 20th century. The most significant transformation took place in the fields of industry and military industry, and in Western Europe the alteration of religious practices was also observable (which appeared in Spain in the 1980s). «As the rate of change in society increases, so generally does the value we place in the old. As the rate of change increases, the pressures to maintain continuity with the past, and hence stability, also in-

creases. The more the ancient, the more the implied continuity, and the greater is the resistance to its being lost»²². Consequently, the drastic metamorphosis and disappearance of functions may conduce to the preservation of some elements of the building stock as mementos, as it is often observable in cases of sacral or military buildings.

The aging of dwellings is considered to be the fastest (38% of all rehabilitated buildings were originally housing) primarily due to the constant transformation of technological and infrastructural demands that even accelerated in the last decades, well demonstrated by the change in motor car use, in kitchen and mechanical equipment, or in energetic achievements. The social, economic and political processes are also strong impacts on the housing demands of an era: the continuously varying family model, the altering standard of living, the characteristic conditions of ownership, even the nature and extent of available state aid. However, a significant part of conversions (43% of rehabilitated dwellings) maintained its function as housing – in these cases we speak about modernization, a renovation according to the functional tradition.

Industrial buildings become obsolete the second fastest (18% of all rehabilitated buildings were originally built for the industry), on the one hand due to the altering of the integrated technology, on the other hand because of reasons of economic policies, which can replace the (geographical or economical) center of production²³ (Fig. 05).

A further considerable part of converted buildings (9%) had originally sacral function, and a high proportion of them (70%) is rehabilitated for a new function, primarily due to the transformation of the society in the last decades. In connection with the political changes of Spain's 20th century, the religious practice altered and the popularity of churches and congregational spaces has significantly decreased; in several cases the renovation of damaged sacral monuments with the same function was not justified. Military buildings become obsolete at the same speed (8% of all rehabilitations), which is an obvious consequence of the drastic change of warfare technology from time to time – all of the abandoned military buildings got another function after the rehabilitation (Fig. 06).

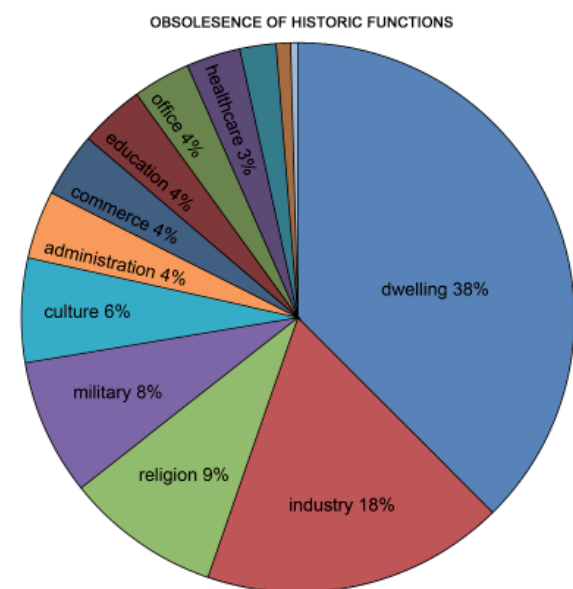
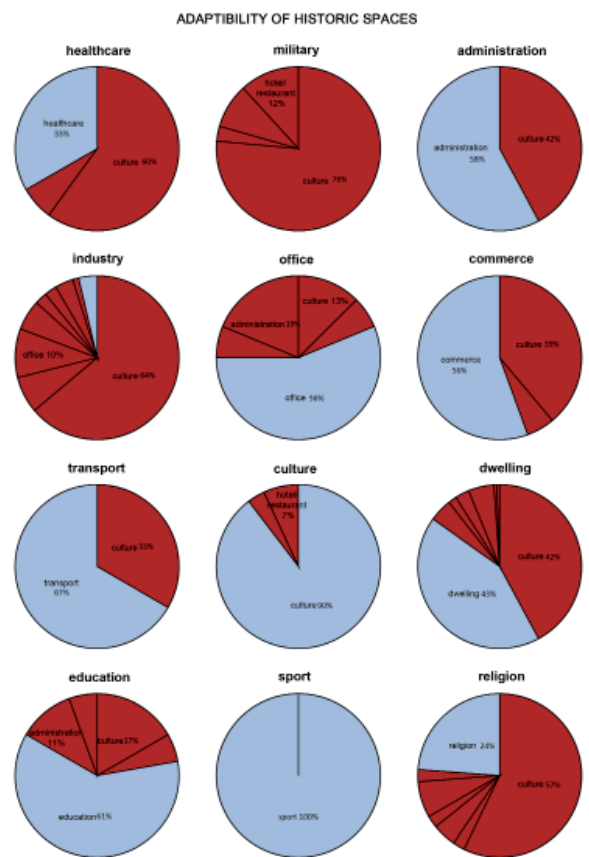
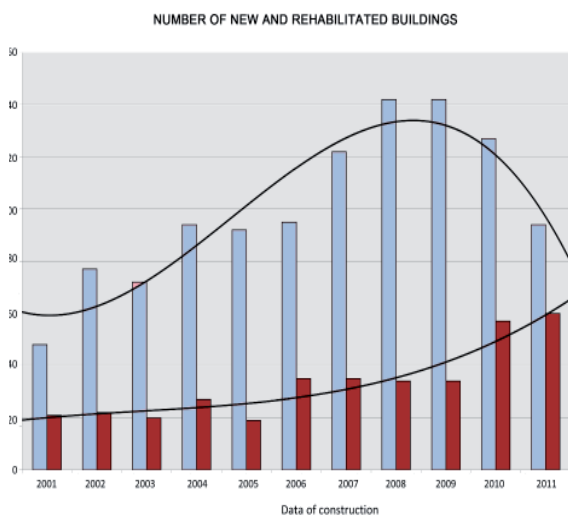
ADAPTABILITY OF HISTORIC SPACES

While the degree of amortization defines the number of historic spaces becoming disengaged, the space

arrangement of buildings based on the original usage determines the new function that could be installed (Fig. 07). The basic criteria are the formal (external) character, the (internal) space arrangement, the capacity of the structure and the infrastructure, as well as the degree of variability and modularity of the elements²⁴. It is easily recognized that the measurements of the rooms of a building and their relationship greatly affects the further usage, however, their connection is equivocal. Some monographs of the 1980s emphasized the advantages of the cellular arrangement where the installation of a new function is relatively easy compared to halls – their intact preservation is handled as an especially hard task²⁵. Nevertheless, based on this research, it can be pronounced that be-

sides the dwellings with cellular spaces (38%) another third of the rehabilitations (35%) refers to industrial, sacral and military buildings. These buildings, due to their original purpose mostly consist of high headroom premises, yet the complete change of function typifies them. This transformation and the divers reuse is resulted not simply by the ageing but also by the social (identity of the community), cultural (artistic and historic values) and economic (energy efficiency) advantages of the rehabilitation processes²⁶.

The most common function to be converted is the dwelling, it is either modernized as housing (43%) or reused (57%) with another – cultural (42%), office (5%) or hotel/restaurant (5%) – function. Cultural



- 02 Number of new and rehabilitated buildings. Diagram demonstrating the ratio among buildings in architectural publications, 2001/11
- 04 Obsolescence of historic functions. A diagram illustrating the different aging of different functions
- 07 Adaptability of historic places. The ratio of new purposes in rehabilitated buildings



- 05** Ensemble Studio, Casa del Lector/Matadero, Madrid, 2010. The century old former industrial zone of Madrid is a new center of contemporary culture
- 06** Carlos de Riaño Lozano, Cuartel del Conde Duque, Madrid, 2011. The military barracks from the 18th century that were reconstructed several times, now function as Cultural Center

utilization usually means the establishment of a museum in former city palaces or manor-houses. In these cases the institution utilizes the frequented, easily accessible site and the existing infrastructure (roads, separated main and service entrance). The representative façade arisen from the high social status of the original client serves well the cultural purpose and the public use, and the historic value attributes the new institution with additional meaning. The *enfilade* of rooms usually meets the demand of exhibition spaces for linear space arrangement, as well as the separated representative and service spaces resulted from the contemporary lifestyle can be easily adapted for the dual (visitor and background) activities of a museum.

The second most common function among conversions (18% of all rehabilitations) is industrial: the cultural utilization of these buildings is especially frequent (63%), besides them only offices (8%) and housing (7%) is relevant. The appreciation of industrial buildings is not entirely integrated yet in the mentality of our society; therefore these modernizations usually do not appear in publications. However, their cultural reuse is widely published, in addition to museums there are more and more auditoriums, libraries and multifunctional communal spaces – functions that can utilize the high headroom premises typical for industrial buildings. The flexible subdivision of these halls serves the mixed use, and the intervention is only profitable in cases of well-attended community usage because of the maintenance costs (Fig. 08). Besides the flexible space arrangement an important aspect is the location since a cultural public building functions

well only at an accessible site near an inhabited area. Therefore the abandoned brownfields that were developed before the 20th century and were integrated in the city structure since are an ideal base for this: the industrial buildings defining the identity of the neighborhood can be preserved through public use, and the intervention joins the isolated zone with the city (physically and mentally as well)²⁷.

The third most characteristic tendency of rehabilitation, the reuse of sacral spaces (9%) is an especially sensitive issue due to the additional meanings of the function. While disused churches, with few exceptions, serve a new cultural purpose, monasteries owing to their structured space arrangement are reused more diversely, usually with educational or hotel/restaurant functions. The typical axial order of churches and their marked focus point makes them suitable for auditorium or theater, the high headroom and the representative character complies with the requirements of a library (Fig. 09). However, the installation of exhibition space is the general tendency, with methods of interior design that leave the original large-scale space structure intact.

In cases of military built heritage (8% of all rehabilitations) the loss of function is complete; the further usage is mostly cultural (68%) that usually means the presentation of the monument itself, sometimes completed with a thematic exhibition. A common solution is the reinterpretation of the building as a landmark – a city wall, bastion or castle could be also maintainable as a ruin, without active function due



- 08** José María Sánchez García, Space of Young Creation, Villanueva de la Serena (Badajoz), 2006. Multifunctional usage of a former reservoir, the instruments of the rehabilitation were simple and economic
- 09** José Ignacio Linazasoro Rodríguez, Library of the Piarist School, Madrid, 2004. The cultural reuse of the ruined Baroque church is a remarkable work of contemporary architecture

to its antiquity value and role in identity formation²⁸. Other possibility of active reuse is the establishment of hotel/restaurant (11%) that utilizes the exclusivity of the place, or the installation of an educational institution (9%) that can function well in a cellular building (Fig. 10).

FREQUENCY OF NEW FUNCTIONS

Besides the characteristics of the historic buildings, the social demand for different new functions is also important in terms of viability of rehabilitations. The frequency of functions among the new constructions can be easily studied based on state and provincial building statistics²⁹. Like in other European countries with similar economic situation, the number of dwellings is the highest among the published Spanish projects, which is followed by cultural and office buildings. Apart from these, educational, sport and transport facilities are relevant, as well as public squares. However, this research demonstrated that the ratio is significantly different in cases of rehabilitations (Fig. 11).

Rehabilitations mostly (in 51% of all conversions) create cultural spaces, like museums, theaters, auditoriums and multifunctional public spaces. This tendency in Spain is related to the decentralizational developments of the peripheral regions: the two-poled (Madrid-Barcelona) system originating in the Franco era was replaced with the parallel extension of the 17 autonomous communities. The investments of the 1990s were mostly supported by the European

Union, but since the new millennium primarily the Spanish State is responsible for the financing of the expansion of the administrative and social network. The cultural developments are explicitly attached to the phenomenon of cultural tourism supported by the state since the 'Copernican revolution' of 1992³⁰, creating alternative touristic destinations besides the seacoasts and major cities³¹ (Fig. 12). The overrepresentation of cultural establishments in architectural publications is also contributed by the architectural competitions made obligatory in cases of public investments, to ensure the high quality of design.

The second most frequent new function (18%) is the dwelling. This function is more common among all the constructions in Spain, but it is underrepresented in the professional literature because of its private ownership – the majority of housing renovations are not published³². A further recurrent function among rehabilitations is the office (6%) where the reuse of historic buildings enriches the space with additional representative value. Another reason is the regression of new office investments since the economic crisis that emphasized the rehabilitations of low costs. Moreover, there is a significant number of rehabilitations for educational or administrative purposes (5-5%) related to the extension of social network preferred at provincial level. Finally, the function of hotel/restaurant – where the instruments of image creation are accentuated and any publicity serves as promotion – is over-represented (5%) in architectural publications compared to the ratio among the total number of national construction.



10 Sol89 (María González García y Juanjo López de la Cruz), Professional Cooking School, Medina Sidonia (Cádiz), 2007/11.
The converted slaughterhouse functions as the community room

CONCLUSION

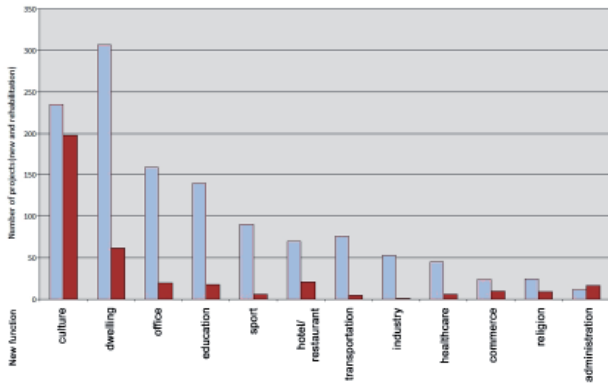
The *raison d'être* of the investigation of functional transformations lies in the fact that in the second part of the 20th century rehabilitation became a new and separate architectural genre that could be analyzed as a phenomenon in itself³³. The paper analyzed the issue of functional transformations related to building rehabilitations and established the main tendencies regarding the defined region and era. The fundament of the investigation was a systematic, comprehensive database containing Spanish projects built in the new millennium – samples that were published either in national or in international architectural press. The main functions were examined from three aspects based on the comparative study of rehabilitations and the collation with the related economic/social/political background.

Relying on the regularities of transformations of historic functions it can be ascertained that although most of the rehabilitations are related to the function of dwelling, their continuous alteration organically follows the functional tradition. However, the acceleration of the determining social/economic processes of the 20th century have led to drastic change or disappearance in cases of industrial, sacral and military buildings (Fig. 13). Regarding the new function installed in a historic building the basic criteria are the formal (external) character, the (internal) space arrangement, the capacity of the structure and the

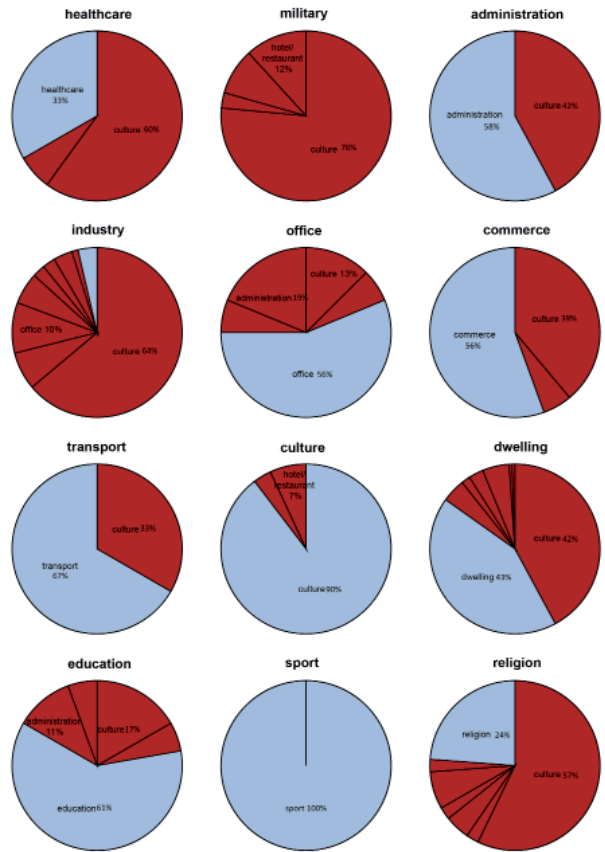
infrastructure, as well as the degree of variability and modularity of the elements. The utilization of cellular and high headroom spaces differs significantly, but they have the same emphasis among rehabilitations – besides the cellular spaces another third of the rehabilitations refers to industrial, sacral and military buildings. Finally, it can be ascertained based on the frequency of new functions that the most common purposes of rehabilitations are cultural, housing, office and hotel/restaurant establishments, mirroring the contemporary principles of construction industry and the support system in the analyzed region and era.

The importance of the research of functional transformations lies in the fact that though rehabilitations slowly become predominant among architectural projects, each one of them is still considered basically as an aesthetic problem of heritage preservation. No doubt, the aspects of art historical values and architectural forms, the questions of contrast and assimilation are truly important, however, the basic design decision of usage determines the latitude of the project. Therefore, beyond the aspects of heritage preservation it is also important to be aware of the usage development possibilities (new functions that follow the functional tradition or that could be easily adapted to the given conditions) and the limitations (urban embeddedness, structural constraints) of each functional section. The article attempted to outline these aspects as a theoretic background for further usage in architectural practice.

RATIO OF NEW AND REHABILITATED BUILDINGS



ADAPTABILITY OF HISTORIC SPACES



- 11 (Above) Ratio of new and rehabilitated buildings. Diagram showing the frequency of new functions among newly built and rehabilitated buildings
- 12 Aldo Rossi & César Portela Fernández-Jardón, Museum of the Sea of Galicia, Vigo (Pontevedra), 1992-2002. The thematic museum integrates the halls of a former factory and the adjacent lighthouse creating an authentic and inspirational atmosphere
- 13 (Right) Flexibility of new functions. Diagram demonstrating the ratio of original functions in rehabilitated buildings



Notes

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- 2 Antón González-Capitel Martínez, *Metamorphosis de monumentos y teorías de la restauración* (Madrid: Alianza Forma, 2009); 1^a ed. in 1988.
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- 9 María Antonia González-Valcárcel Sánchez-Puelles, *Curso de Rehabilitación. I. La teoría* (Madrid: COAM, 1985), 7.
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- 15 Ignacio Bosch Reig, *Intervención en el patrimonio: análisis tipológico y constructivo* (Valencia: UPV, 2006).
- 16 Collective volumes like: Josep Maria Minguet i Mira, *Casas Rehabilitadas* (Barcelona: Monsa, 2007); Schittich, *Rehabilitación*; or Charles Bloszies, *Old Buildings, New Design. Architectural Transformations* (New York: Princeton Architectural Press, 2012).
- 17 Dimitris Theodossopoulos, *Structural Design in Building Conservation*. (Oxford: Routledge, 2012); or «Rehabilitación (I). Estructuras», *Tectónica* 18 (2004), monographic issue.
- 18 Cf. *Spain Architects. Rehabilitación*.
- 19 The investigated Spanish periodicals were: *Arquitectura Iberica, Arquitectura Viva, Arquitectura Viva. Yearbooks, ConArquitectura, El Croquis, On Diseño, Restauración & Rehabilitación, Arquitectura COAM* and *Tectónica*, that were completed by international architectural forums like *Archdaily* or *Dezeen*.
- 20 For further tendencies: Anna Nóra Kóródy (2014) and Zorán Vukoszavlyev (2014).
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Source of figures

Photos and diagrams by Anna Nóra Kóródy

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