

Building Rehabilitation – Tendencies of Functional Transformations in Spain

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Abstract

Over the last decade, instead of new constructions, building rehabilitations have become a focal point of international architecture. The extending approach of heritage protection opened up a broad spectrum of architectural instruments besides the solutions traditionally applied to protected monuments. These contemporary methods serve the sustainability of heritage through their further usage and adaptation for new functions. The paper concerns the problem of integrated monument restoration from the viewpoint of functional transformations and presents the tendencies of conversions featured in the examined period. Stability or gradual disappearance of certain functions is observable, and they can also be defined as flexible or bounded due to their adaptability to different buildings. Functional transformations are influenced by several social, economic and architectural aspects like environmental facilities, architectural values, local construction regulations, structural facilities, spacial arrangement and questions of ownership. The investigation is based on building rehabilitations in Spain where the number of projects allows the establishment of comprehensive conclusions; furthermore, the case studies of high architectural quality also introduce examples for Hungarian practice.

Keywords

building rehabilitation · monument restoration · functional transformation · Spain · contemporary architecture

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1 Introduction

Building rehabilitation, as a trend of contemporary architecture concerning an extended circle of built heritage, has become a focus of international architecture in the last decade. This phenomenon is observable in construction practice as well as in the bibliographical background. The increase in the ratio of building rehabilitations compared to new buildings is a process observable all over Europe – principally related to the economic world crisis of 2008. The ratio of new and rehabilitated buildings is approximately 60-40% in the investigated territory, which is similar to the structure of the construction industry of other Western European countries. This proportion is tending to equalize since the crisis. [12] (According to Spanish construction statistics, this rate was 70-30% among the building permits in 2008; moreover, the interior renovations without official admission were not concluded. [24])

The terminology connected to the topic also mirrors the changes: besides the expressions of traditional monument protection like reconstruction or restoration [33], some new ideas have been introduced in related studies: rehabilitation, recycling, reuse, renewal and renovation, conversion and transformation. [27; 31] Compared to protected monuments, the circle of built heritage as the territory of analysed interventions contains a multiple number of buildings differing in age, function, uniqueness or architectural value. The variety of treated monuments also resulted changes of methodology [10]: besides classical monument reconstructions, some more “free” interventions, according to contemporary architectural trends, came to the fore in cases of historic building conversions.

The research investigates the tendency, which is observable all around Europe [28], in a certain region; that of Spain, where the number of building-rehabilitations appearing in architectural publications is especially high; this allows their systemization and the establishment of tendencies. [9; 22] The research database contains approximately 1700 buildings, with about 400 rehabilitations among them. [34; 35] These have all been finished since the Millennium and are examples of high architectural quality published in national and international

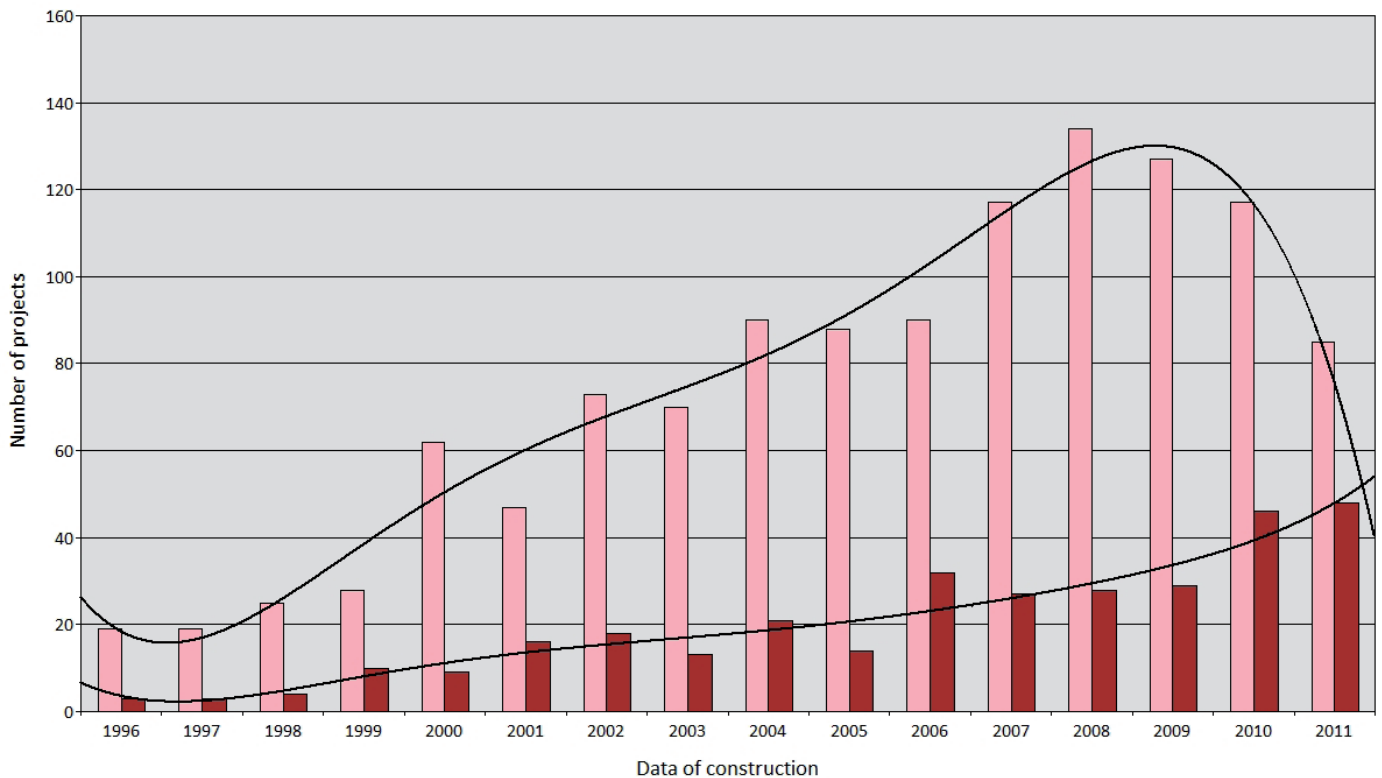


Fig. 1. Number of new constructions and rehabilitated buildings from 1996 until 2011

professional media. [5; 10; 16; 21] Consequently, the observed connections and demonstrated proportions are proven primarily only among these published buildings. However, the ratio – after some corrections and alterations – could also be considered to characterize the general construction output of the country. This paper focuses on the characteristics of functional transformations [23] and investigates the frequency, the obsolescence, the flexibility and the stability of (original and new) functions of rehabilitated buildings. Functional transformations are not interpretable in themselves but only reflect the social and economic background, and processes of the time and the region. Furthermore, the facilities and limits of a certain building also affect the functional changes aligned to the aspects of environment, architecture, regulation, structure, spacial arrangement and ownership. [20]

Based on **environmental facilities**, the urban setting and the situation in the city structure (its central, peripheral or independent position) is determinant for the legitimation of a new function. The connection system and infrastructural facilities of the surroundings are strongly linked to the character of the social environment (financial, transportation or temporal) like the potential of the inhabitants and occurring social demands. In cases of conversions, the **architectural values** are to be considered in regard to historic aspects. In cases of protected monuments, the restoration is officially regulated by several (architectural/structural/functional) limitations; however, the role of unprotected heritage without values of uniqueness is

also to be emphasized. The preservation or removal of certain elements based on their historic or aesthetic character is a responsible architectural decision in the course of functional transformation. Local **construction regulations** mirror the economic-political background through architectural instruments. [1] The converted buildings, especially in cases of functional transformation, have to meet contemporary requirements that were not in force at the time of the original construction. The modifications of the regulation plan, the actual energetic and fire service formulae, as well as aspects of health and environmental protection, all affect the potential intervention. The aspects of energetics are emphasized where the functional relations of outer and inner spaces change, and therefore when heating (and air conditioning) also has to be transformed.

Structural facilities are strong limitations for conversion – for instance the static system, the construction technology, or the changing load due to the new usage. Similarly, the actual state of a certain building is also determinant regarding its potential rehabilitation as is the **spacial arrangement**. Determinative factors are the connections of inner and outer spaces, the situation regarding access and the possibilities for illumination as well as horizontal and vertical dimensions of the original volume: the floor space, its span, the number of floors and their headroom. Besides the listed aspects of urbanism, architecture and structure, the character of the investment is also an important factor in the case of rehabilitation. Related to the **ownership** of the building, the financial sources and support

involved in the project are supreme. The profit to be achieved depends on the nature of the function as it differs depending on whether it is self-supporting, or will require constant sponsorship, according to the rentability of the institute. [6]

2 Frequency of Functions

The frequency of functions among new constructions can be readily analysed, with the different government and province statistics. These allow us to comprehend the construction industry trends within a country. Among new Spanish buildings registered in national and international media – according to other European countries with similar economic background – the number of dwellings ranks highest, followed by cultural and office buildings. Besides the construction of several educational, sport and transport facilities are numerous newly arranged public squares.

In the case of building rehabilitations, these proportions are significantly different. [4] After analysing the database, it can be established that in most cases (in 52% of all conversions), cultural facilities are created through rehabilitations – for example exhibition spaces, civic centres, concert halls and theatres. In Spain, this tendency is principally triggered by the development of the peripheral regions that replaced the bipolar (Madrid-Barcelona) administration system evolved during the Franco era; now all 17 autonomic provinces have been developed equally, and in parallel, since the 80s. The investments of the 90s were mainly supported by European Union sources [15, p. 97]; although, since the millennium, the state is primarily responsible for funding the projects – especially as the extension

of the administrative and social network. Furthermore, according to certain research, [26] cultural investments are also linked to cultural tourism, a phenomenon supported by the state. The overrepresentation of cultural facilities in architectural publications is reinforced by current regulations that order open design competitions connected to each public investment to ensure high architectural quality – this regulation has clearly affected the values of architectural projects in the country.

The second most frequent function among rehabilitations is the dwelling (17%) – including both the renovations of flats and family houses. The incidence of this is significantly higher regarding all the constructions in Spain, but it is underrepresented in the media as private investment. [19] A further frequent function among rehabilitations is the office (5%) – a highly popular contemporary demand that was also observable in Hungary in the 2000s, ending with the world crisis. In addition, rehabilitations connected to educational or administrative institutions are also characteristic (5-5%) since they are investments linked to the social network preferred and developed by the state or local government. Hospitality facilities are overrepresented in international architectural media (5%) compared to their ratio in the actual construction industry. The dominance of unique architectural instruments creating a characteristic image for the hotel or catering trade explains this phenomenon.

The following case studies are presented to expound the most characteristic functional transformations through examples of high architectural quality – four realized projects related to each of the four main topics.

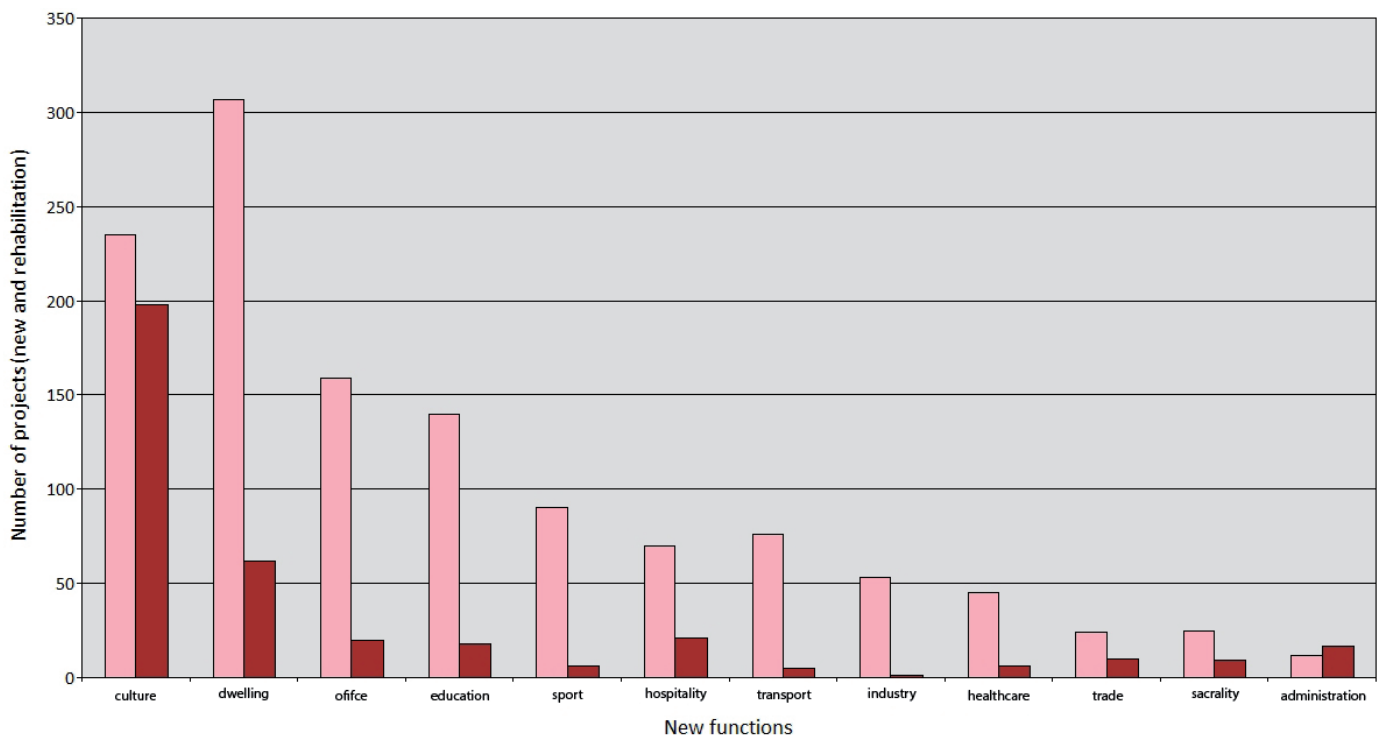


Fig. 2. Frequency of functions among new and rehabilitated buildings. culture (52%), dwelling (17%), office (5%), education (5%), administration (5%)

industry - culture

The El Pintado Ethnographic Museum is a characteristic example of buildings converted to a cultural institution. (ACTA_1996-2007_Ayamonte_El Pintado Ethnographical Museum) The museum complex was created by the extension of a good condition, renovated mill from the 18th century. The original building was ideal to demonstrate agricultural production and the traditional way of living based on it since the mill was constantly used until 1946. A new wooden roof truss bears on the original thick walls and the additional wing (where the service functions were placed) follows its width. The uniform architectural treatment of both parts combines them into an organic complex in both the exterior and interior.

industry – dwelling

The ‘loft’ is a particular type of dwelling created through rehabilitation – high quality apartments inside an unused industrial hall typically near the city centre. The idea of the loft appeared in the USA, in the 80’s, and has become widespread throughout Europe since then. On the site of the Tort de Sabadell factory, founded in 1900, sixteen flats were created internally by preserving and expanding one industrial hall. (Cruz&Ortiz_2007_Sabadell, Barcelona_Can Planell housing) The enlargement generated a parallel system: a volume with similar proportions was placed parallel and next to the original hall; a third analogous shape covers the space in-between. This covered semi-public space contains the corridors and subordinated functions that open here. The inner height of the hall created the potential for vertical connections inside the flats; all two-story apartments have rooms of double headroom.

education – office

The institution of the Chamber of Architects in Madrid (COAM) was able to open new offices in the historic city centre by completing and renewing the block of the 18th century San Antón Piarist School, according to contemporary demands. (Gonzalo Moure_2005_Madrid_COAM Headquarter) The communal character of the Chamber was emphasized by public cultural functions situated on the first floor, such as exhibition spaces and multifunctional lecture rooms; the administration offices were placed on the floors above. The preserved and renovated external façade kept the historic style of the surrounding city structure; the additional attic over the terminal moulding is not visible from the street.

sacrality – hospitality

A rare and noteworthy example of accommodation is the extension of the Santa Teresa Convent that was founded in the 17th century. (Linazasoro_1983-1991_San Sebastian_Santa Teresa Convent) Due to its urban setting, the architect could not enlarge the Baroque church horizontally, therefore, decided to build through the vault into the attic above. In the new wooden

roof truss, above the centrum of the Latin Cross layout, two floors were set containing the rooms of the nuns and their common premises, like the library. The inner corridors are naturally lit through skylights and the rooms open up with large glass surfaces towards the beaches of San Sebastian.

3 Obsolescence of Functions

The analysis of building rehabilitations demonstrates the aging functions that frequently need renovation or conversion according to the obsolescence of the related function. [30] The function aging at the fastest pace is the dwelling (36% of all rehabilitated buildings) – this phenomenon is triggered by the rapid change of infrastructural demands that were observable over the last decades; for example, the differences in car usage, kitchen equipment or electronics. Similarly, the social, economic and political processes influence the demand for flats of a certain age like the constantly reshaping family model, the average standard of living or level of state aid. [13, p. 9] However, a significant number of the transformations (42% of the rehabilitated dwellings – the other 58% changed their function during the rehabilitation) preserve the original function, performing renovation or modernisation.

The second among the rapidly aging functions are industrial and agricultural establishments (18% of all rehabilitations) where the metamorphosis results from the obsolescence of integrated technologies and economic-political changes replacing the (geographical or economical) focus of production. [25] A significant number of the transformed functions (8%) were originally sacral, and these buildings predominantly (70%) lose their original usage. This can be explained primarily through the transformation of society in Spain over recent decades, where the Catholic Church was significantly supported by the state during the Franco era; since then, the religious regulation has loosen, generating a reverse transformation.

Buildings of a once strategic use (8% of all rehabilitations), ensuing from the drastic change of military technologies from age to age, are a further category. The disused buildings (in 100%) provide a site for a different function that allows the reformation. Cultural usage is common as these buildings, due to their historic connotations, are especially suitable for the representation of historic continuity and the presentation of historic ages to society. [29] Since cultural usage is the most characteristic for building rehabilitations in cases of functional transformation (see 1. chapter), the paper introduces four examples that were renovated since the millennium and serve as exhibition space.

dwelling – culture

A typical example of the fast aging dwelling is an urban palace of public ownership. A frequently used solution for preserving the high quality interior and for presenting its artistic values to the public is to create a museum out of the

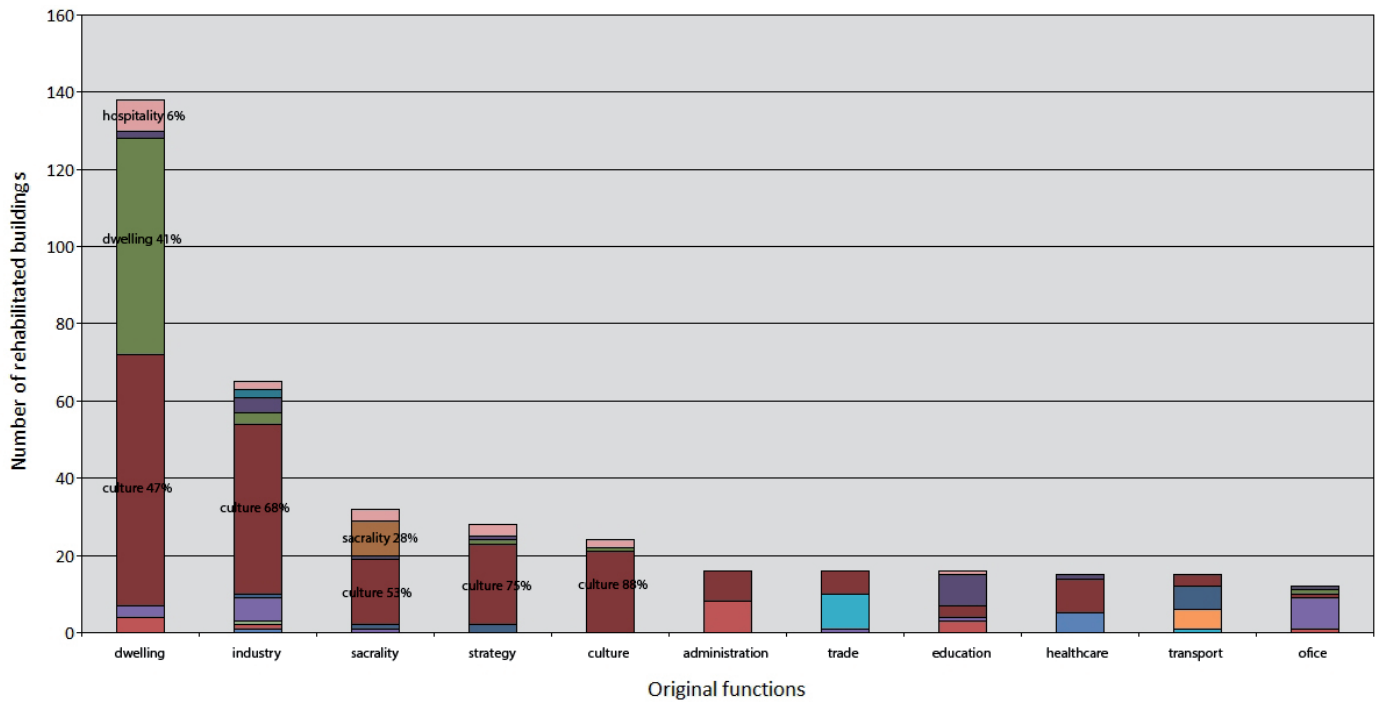


Fig. 3. Obsolescence of functions among rehabilitated buildings. dwelling (42%), industry (18%), sacrality (8%), strategies (8%)

building – it becomes free to visit, the exhibition spaces have few spatial limitations, and the necessary administrative and service functions need only a limited amount of space. A high quality example for this type of transformation is the MEAM (Museum of the Modern European Art) that occupied the rooms of the Palau Gomis in Barcelona. (Garcés&de Seta&Bonet_2007-2011_Barcelona_MEAM) The modernist and contemporary pieces of art contrast the Baroque interior of the 18th century palace, enriching them with additional significance. The high quality ornaments of the building, the frescos, the painted wooden ceilings and the Baroque door and windows were authentically restored. A new staircase in the inner court connects all the floors simplifying the visitor’s route. Its tracing follows the original representative main staircase leading to the ‘piano nobile’. The axial arrangement of rooms (enfilade) is ideal for exhibition space due to its easily traceable linearity.

industry – culture

The ABC Museum and Centre of Design is accommodated in an old industrial building in the centre of Madrid. (Aranguren&Gallegos_2011_Madrid_ABC Museum and Centre of Design) After decades of abandonment, the two-hall multi-storey building was reintegrated into the vivid city structure through the intervention in 2011. The narrower wing of the L-shaped volume was deconstructed and replaced with a bridge structure to help communication with the public area – this is essential in case of community institutions. An independent art café with a panoramic view was opened in this bridge structure,

and at the same time it works as a roof and a sign for the main museum entrance. The decorative steel beam system provides a surface that is a unique advertisement for the centre, and at the same time, it evokes the inner atmosphere of the industrial hall due to its uniform white colour. The service functions and educational rooms are sited in one of the two halls of the original building; the other parallel hall serves as a contiguous exhibition space. The new great hall built under the inner courtyard provides space for larger installations.

sacrality – culture

The church of Corbera d’Ebre was seriously damaged during the Spanish Civil War. The roof structure burned down and most of the vaults fell in, leaving the building abandoned for 50 years and becoming part of the city structure as a ruin. The architect asked to design the renewal wanted to commemorate the destruction of the Civil War, as well as evoke the era of desolation, and suggested the use of a transparent material for the covering. (Ferran Vizoso_1999-2011_Corbera d’Ebre, Tarragona_Covering the ruins of a church) The applied wired plastic canvas awning deflects water from the structures; its construction is low-priced, but at the same time it preserves the feeling of uncovered free space inside the nave, and presents the intact walls and arches without any addition or reconstruction, emphasizing the appearance as a ruin. The sacral space survives as a multi-function common room, accommodating exhibitions, conferences and social programmes with its distinctive historic atmosphere.

strategics – culture

The Castle of Peñafiel originates from the 10th century although its present state was developed during the conversions in the 14th century; it is also a protected monument. Due to its characteristic shape, the fortress, built on a ridge 150 meters long and only 10 meters wide, became a regional icon. Since the town is at the heart of the world-renowned Wine Region of Ribera del Duero, the installation of a wine museum was a suitable solution for its utilization. (Roberto Valle González_2001_Peñafiel,Valladolid_Museum of Wine) Half the layout of the castle was entirely built in with the new volume filling the space between the two longitudinal walls and preserving the rubble stone surfaces that assign historic atmosphere to the interior. The only free façade of the museum, the entrance wall, has a glass surface shaded from the Mediterranean sun by a wooden pergola; it is harmonized with all the wooden structures used inside.

4 Flexibility of functions

The functionality of buildings are clearly definable by their varying flexibility – their adaptive quality and the extent that they can accommodate and replace another function, and how difficult is it to meet their functional requirements. Those functions frequently replacing another differing use, after rehabilitation, are especially flexible. [8; 17] First among these is the already mentioned cultural-common function (museums, exhibition spaces, concert halls, performance areas, community centres, multipurpose community spaces) that can be easily

adapted due to its flexible space structure. The diversity of functional requirements of cultural-common institutions allows the use of high-ceiling halls and multi-celled spaces. [18] An important factor is the limited claim for natural light (especially characteristic for exhibition spaces) compared to functions of permanent residence where the lack of natural light can be an exclusion criteria. With reference to the research database, in cases of building-rehabilitations, cultural uses were applied predominantly (89%), replacing other different functions – the remaining 11% contains renovations of cultural spaces.

The ratio is similarly high (90%) among hospitality establishments, principally in cases of developing accommodation and restaurants. It is the nature of this usage that it requires only simple transformations when inserted into a dwelling; therefore, it is easily adaptable – the spacial arrangement of the common spaces of a hotel, as well as a restaurant, are similar to the general layout of a residence. Office and educational institutions are replacing another function in almost half of the cases (60% and 53%). This feature illustrates the considerable recent demands for these functions, and that they can be easily adapted to different spacial structures, being able to make use of small and large rooms at the same time. Similarly, this flexibility allows the utilization and renewal of outdated, abandoned industrial halls and complexes. A further reason for this phenomenon may be that neither offices nor educational establishments are strongly affected by their setting in the city structure –central and peripheral situations both give an advantage to different target groups.

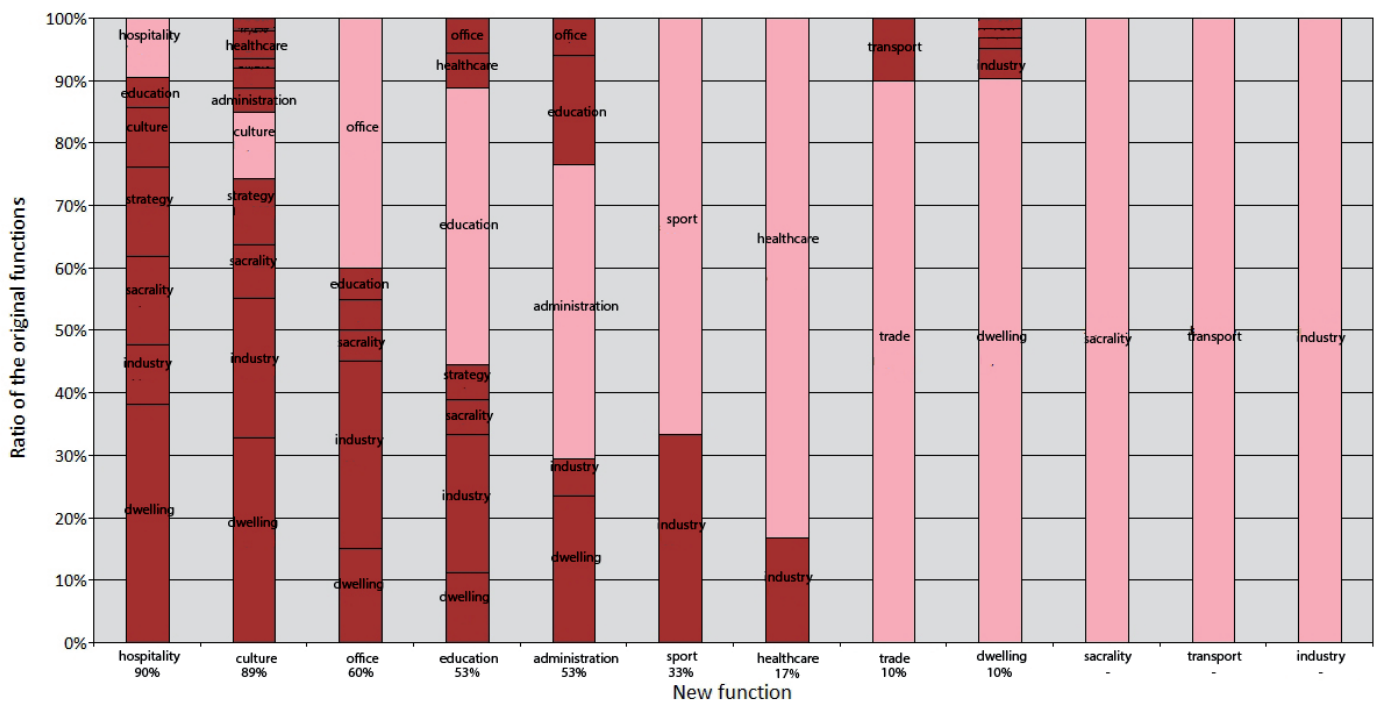


Fig. 4. Flexibility of functions among rehabilitated buildings. hospitality (90%), culture (89%), office (60%), education (53%)

industry/strategics – culture

The medieval shipyard of Cartagena was converted with a cultural purpose. (Lejarraga_2010_Cartagena_Rehabilitation for the Arsenale) The parallel closed naves of the Arsenale were illuminated through special skylight chimneys delivering natural light to the interior. The curved perforations on the longitudinal walls evoke the geometry of the structural system of the Romanesque vaults creating a (partially for circulation, partially only visual) connection between the naves. The large, contiguous halls also meeting the requirements of exhibition spaces, enabling the unified covering of the Renaissance floor mosaics with a glass platform to preserve its carpet-like integrity. The spaces are divided by glass walls filling the entire cross-section; the visual connection serves the enforcement of the original spacial arrangement without interfering with the function. The required mechanical utilities are hidden in a narrow band along the longitudinal walls covered by a perforated steel sheet to avoid significantly obscuring or damaging the medieval walls.

dwelling – hospitality

The Restaurant Les Cols is accommodated on the ground floor of the 13th century residence of the family head chef. (RCR Aranda&Pigem&Vilalta_2003_Olot_Restaurant Les Cols) The restaurant dining room is situated at the front of the house under the first floor terrace and framed by a solid stone barrier. The metal filigree load-bearing structure supporting the terrace creates a light floating impression, emphasized by the large opening running along the whole façade of the restaurant. A series of twisting steel lamellae create a private space for the tables. The core of the original building hosts the great hall with one single long table for special events. The kitchen is situated in a previously built single storey outhouse where, owing to the independent position, the necessary infrastructure was provided. The success and popularity of the catering unit was confirmed when, after a few years, a separate hotel, designed by the same architects of the RCR office, was added to the complex.

industry – office

The work of the Ferrando and Ortega architect partners is a high-quality example of the revitalization of a former industrial building with an office purpose. (Ferrando&Ortega_2011_Barcelona_Design office) The design office was placed in a former coalbunker, in the inner yard of an octagonal block characteristic of the city structure of Barcelona. The two-nave steel construction hall was divided by a gallery on one side, with closed chambers and service rooms beneath private workspaces. The large tables of the design office stand in the other full height nave giving space to free cooperation. The differing parts of the space are unified by a uniform whitewash. Indirect natural illumination is ensured by spot-like skylights along the perimeter walls and by a single narrow airshaft at the end wall, which also serves as an entrance.

industry – education

Through the conversion of a 19th century slaughterhouse, and building in its courtyard, an educational institution was established in the historic town of Medina Sidonia based on the works of the office Sol89. (Sol89_2007-2011_Medina Sidonia, Cádiz_Cooking School) The principal concept of the complex was the repetition of the small, characteristic units of the traditional town structure clad with clay tiles. Their contemporary reinterpretations are the asymmetric gables, covered with modern flat red ceramics, which, as a result of the high-level windows, enable the occupation of the entire area of the yard. In the new wing, classrooms and service premises are separated by small glass courtyards at intervals to provide areas for students to grow vegetables and herbs. The original arched doorway remains as the entrance to the school and leads in via the old structure; the central space of the historic building is now used as a dining hall.

5 Stability of Functions

An opposite attribute to flexibility of a function is its stability – this represents the ratio of how much the spacial arrangement or the infrastructure of a purpose is unchanged. [3, p. 33] In cases of building-rehabilitations, their renovation and renewal is characteristically a similar or the same function. [2] This is highlighted in industrial buildings where state-of-the-art technologies and the organization of spaces do not allow the conversion of a building of different origin. The analysed database demonstrates that industrial purposes are (in 100%) only suitable for buildings originally built for industrial usage. (However, such rehabilitations with an industrial aim are only sporadically present in the architectural media.) The phenomenon is also justified by the fact that renovation of industrial functions is primarily a technical and not an architectural problem, thus architectural quality is often neglected in these cases, which results in their underrepresentation in publications. [7]

The ratio is similarly high (100%) among transport related establishments: the bound infrastructure and the given parameters of related means of transport substantially define the possibilities of transformation. Changes follow the modification of technology but do not allow radical functional conversion. A similar stability (of 100%) of function is observable in sacral spaces since they can be placed only in specific locations due to the explicit spiritual requirements. Sacral spaces established through rehabilitation in recent decades were created only in buildings that were used by the church beforehand.

Finally, based on the analysed database it can be confirmed that the majority (90%) of dwellings are also characterized by this stability – the number of apartments replacing another original purpose is minimal compared to the multitude of renovations by residents. On one hand, this type of functional continuity featured by dwellings is a result of the limited change of spacial structure during the centuries and its high adaptivity.

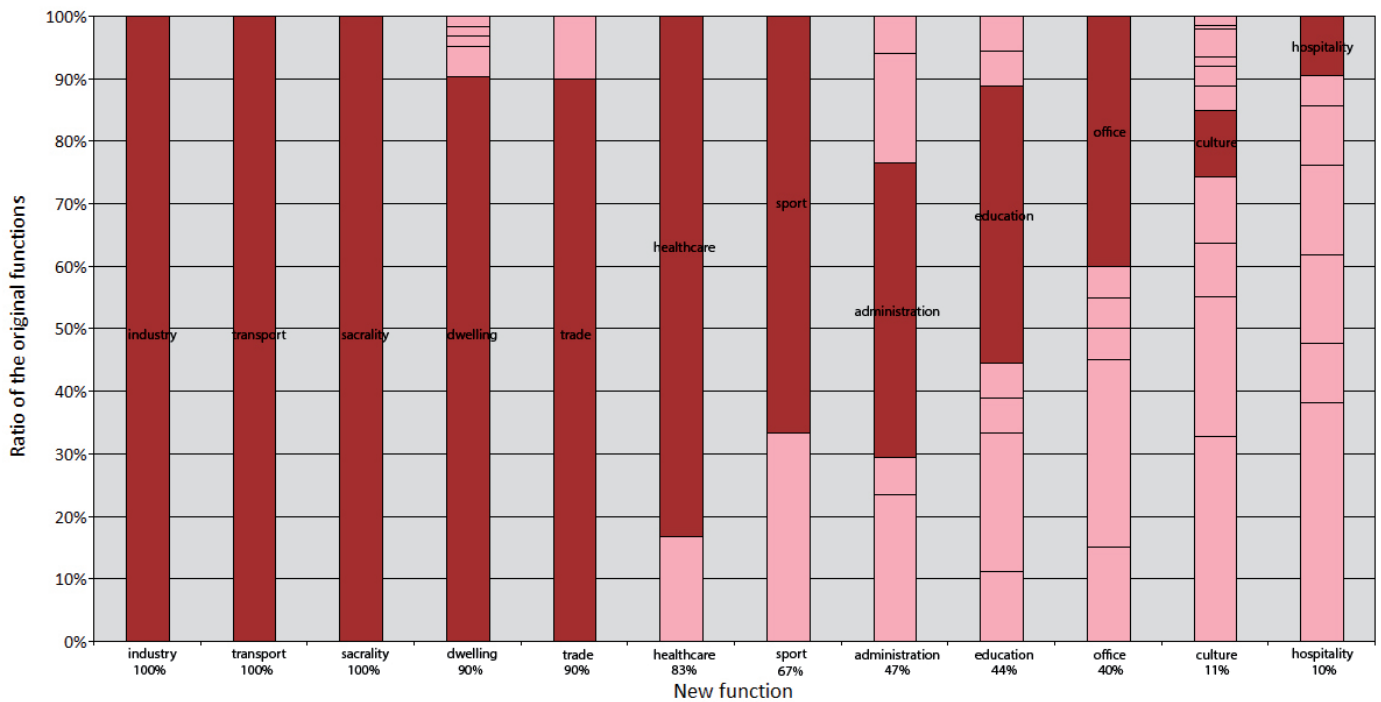


Fig. 5. Stability of functions among rehabilitated buildings. industry/agriculture (100%), transport (100%), sacrality (100%), dwelling (90%)

Conversely, it is influenced by the ownership structure since separate renovation of the independently owned private dwelling units is more realizable than a unified conversion of all the housing after purchase by one owner. [32]

The renewal of the Sarría Winery based on the plans of the Tabuenca&Leache office were mainly a task of interior design. (Tabuenca&Leache_2007-2008_Puerta la Reina, Navarra_Sarría Winery) Representative spaces of public circulation also suitable for catering were to be designed in the cellars besides preserving the agricultural function of the winery. The solid wooden material of the inserted new elements emphasises the furniture-like character; even the separating walls are made of movable wooden screens. The purpose of the intervention is related to the hospitality function; however, due to its open, contiguous spaces, it is inseparable from the industrial use.

transport – transport

The lower departure building of the Tibidabo Funicular in Barcelona was built at the end of the 19th century. The ground floor originally worked as a public circulation space; the first floor hosted the apartment of the station-master and the uphill wing behind the building served as the station for the vehicle. The rehabilitation, following the millennium, removed all the posterior additions and reconstructed the original decorative floor completing it with new floral insertions. (MiAS Arquitectes_2007-2008_Barcelona_Tibidabo Funicular) The façade of the building was originally painted with advertising posters – the restoration of these was beyond the means of the intervention; however, a special coating allows posterior

exploration. The basic elements of the modernization are situated inside as installations; screens hanging from the ceiling around the historic iron pillars border the different contemporary functions (like the ticket-office, the waiting room or the route for the passengers). The vehicles of the funicular have not changed over the last 100 years; their only modernization was the new, youthful graffiti-like painting.

sacrality – sacrality

The chapel in the outskirts of Alberite is a building-rehabilitation in the broad sense; it preserves and synthesizes an archway of a presumably sacral building originating from the 16th century. (Otxotorena_2005-2009_Alberite, La Rioja_Hermitage Virgen de la Antigua) The ruin forms an external element parallel with the new nave of the church, creating a covered-opened narthex. The chosen material (exposed concrete) contrasts the historic stone structure; however, the vertical subdivision of the archway is repeated by the rhythm of the skylights on the contemporary wing. The ruin defined the base unit for the arrangement of the chapel and the continuity of the spatial proportions; the stability of the function connects the historic and contemporary architecture in space and time.

dwelling – dwelling

The Collage house, presented in several international publications, was created through the linking and the integrated rehabilitation of three houses of a block differing in size, the number of stories and in ground levels. (bosch.capdeferro_2009_Girona_Collage house) The preserved horizontal

spatial arrangement is suitable for apartments even after such an intensive reinterpretation, illustrating the outstanding stability of the residential function. The slabs, and partially the circulation axes, were rebuilt to meet contemporary requirements (like accessibility) and completed the new spatial relationships. In the interior, new partition and front walls cover the equipment serving contemporary demands. The uniformity of the block is emphasized through the aesthetics of the unplastered wall construction exposed on both inside and outside surfaces, and through the decorations of coloured tiles found in the rubble at the construction site.

6 Conclusion

The paper investigates the tendencies of functional transformations connected to building rehabilitations. The research was based on a database containing Spanish projects completed since the millennium – examples that were published in the Spanish and international architectural media. The occurring functional groups were analysed along four different aspects based on architectural comparative researches of building-rehabilitations and analysis of the related socio-economic- background.

According to the frequency of functions, it could be ascertained that cultural, residential, office and hospitality purposes are applied most frequently since these functions are emphasized by construction-political decisions and the economic

support system reflecting the concerned territory and era. The obsolescence of purposes shows the pace of social and technological transformations and their architectural results. Based on the research, residential, industrial, sacral and strategic buildings are the most likely to become obsolete, and they are the most frequently architecturally transformed. The flexibility of functions demonstrates the adaptive quality: to what extent can they be accommodated in a building replacing another function, and how difficult is it to meet its functional requirements. Those functions frequently replacing another differing use after rehabilitation are especially flexible, such as hospitality establishments, cultural use and offices. An opposite attribute to flexibility is the stability of a function – this represents the ratio of how much the spatial arrangement or the infrastructure of a purpose is unchanged. Especially enduring functions are industrial/agricultural, transport and sacral purposes where the continuity of use is predominant.

The research defined the tendencies of functional transformations in cases of building-rehabilitations with reference to a limited territory and era. A further direction of investigation would be the comparison of these processes with Hungarian or Central-European characteristics, which would demonstrate the differences based on the social and economic background, likewise the similarities following from the functional nature.

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