



Extended summary

## Study of accessebility and removal of architectural barriers of historic buildings bound

*Curriculum: Architecture, Construction and Structure*

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**Abstract.** The subject of the doctoral fellowship is ' the study of accessibility and the killing of architectural barriers in historic buildings bound ', whereas today's theories of restoration and recovery. Through a careful study of the theme of accessibility and protection of historic buildings, the aim is to define a "system" that protective on the one hand the usability of the historical-public spaces for people with disabilities, and secondly to overcome the principle of exception for works of adaptation, deemed detrimental to historic buildings.

**Keywords.** Accessibility, barriers, historic building, disability.

## **1 Problem statement and objectives**

### **1.1 The theme of thesis**

The thesis addresses the issue of removal of architectural barriers and accessibility of historic buildings and bound a public function, considering the requirements of law in the field of cultural and architectural barriers.

The research will examine how the buildings above mentioned requirements accessibility, visitability and adaptability are satisfied and if can talk design for extended use. Additionally, given a sample study aims to evaluate the solutions adopted for access and use of space for the disabled, the extent to which law will apply for exemption DPR 503/96 (art.19 paragraph 3) and develop a methodology analysis that allows a careful study of the topic of accessibility even the design of recovery.

### **1.2 The state of art: literature**

The study of the state of the art, showed that the issue of barriers architecture was addressed for the first time in the fifties America, following the birth of the movement who worked for Barrier Free meet the demands of people with polio and veterans Vietnam. In the sixties, for the first time, to the word for Design Herds. In Italy the first sign there was in 1965 after the Conference of Stresa.

In principle, the question was addressed as a problem in its socio-care and early interventions relate to the economic sphere, and medical. Over time, the social perception of the problem changes and you get to a new vision of disability and its dominant characteristics. The disability is not an impairments that brings together man deficits and total dependence, but describes a state of health as a function of different areas of life (employment, social, family).

### **1.3 The state of art: laws**

A new understanding is reflected in both international and national level, in a rich law, organized in performance requirements and references, which is now a good level in implementation construction of new buildings, both private and public. In existing buildings, and especially those of a historical nature, the solutions are inadequate for accessibility and insufficient for the visitability. The arrangements under existing laws are implemented with difficulties and basically we work to ensure or adaptability or visitability with removable ramps and restrooms. For action greater impact is the tendency to apply the principle of exemption, permitted by law 13/89 and by Presidential Decree 503/96, which retards? adaptation of historic buildings already restored and provides a loophole for new designs.

The problems arising from the principle of exemption is not so much related to its existence, but all ambiguity of interpretation. The paragraph 3 of the article 19 DPR 503 of stresses importance of having a different behaviour with buildings and areas with significant historical and environmental heritage to preserve art. It does not negate the need to solve the problem of bb. aa. and, in fact, requires the technician to find a solution, but at the same time allows the use of temporary structures or possibilities of escape the law with a technical report.

There are many issues to which the rule in its current state, cannot answer, especially its application strongly affected by knowledge and sensitivity socio-artistic tutelante institution or technical, why the choice between accessibility and no protection linked to a law or a prescription, everything is controlled by the person.

In Italy, given the great wealth of historical buildings present the duality of accessibility and protection still very strong and conditioned by presence of currents that claim that these principles cannot coexist in historical buildings, being one the opposite of the other. One report possible is the subordination of accessibility to protection.

#### **1.4 The duality of accessibility and protection**

The factors behind these ideas are different: no in-depth knowledge of issues, no one knows and understands the strong humanistic shared by the two situations, you do not accept the possibility of interplay between new and old in which one benefits from other more. It thinks and works for clichés, so the accessibility is just a matter of ramps and bathrooms equipped, and the disabled par excellence is a man in a wheelchair. It is unable to consider the accessible design as a possibility and not as an obligation, as a law to fulfil. For this reason, many of the solutions proposed by engineers are dilapidated and often inconsistent. What is perhaps more unusual still missing awareness of the nature of our community', which belong to a company evolved in which the average lifespan increases, the number of elderly increases and medical advances are such as to ensure people to survive.

Short overview to frame the scope and the problem faced, supported by appropriate literature.

## **2. Research planning and activities**

The thesis is been divided into two phases: an *information-communication*, another *technical-scientific*, considering all of these factors describe in the precedent paragraphs.

### **2.1 The first phase: information and communication.**

In this case, the job set with a structure of type doctrinal that it intends to resolve the doubts about the concept of disability, barriers architectural and accessible design, analysing the sources and collected material. Also the job intend to present the disabled of today, to breaking down the image stereotyped of man in a wheelchair, and study them deficit according to socio-cultural context. You want it, then, provide some key concepts on evolution of philosophy on the principles of restoration and conservation, speak about the meaning of protection, enhancement and cultural heritage. Through these doctrinal digression, we want to draw a clear picture of problems related to the themes of research before moving to a phase of comparison to assess the points that make it possible to find a coexistence of old and new.

### **2.2 The second phase: technical-scientific.**

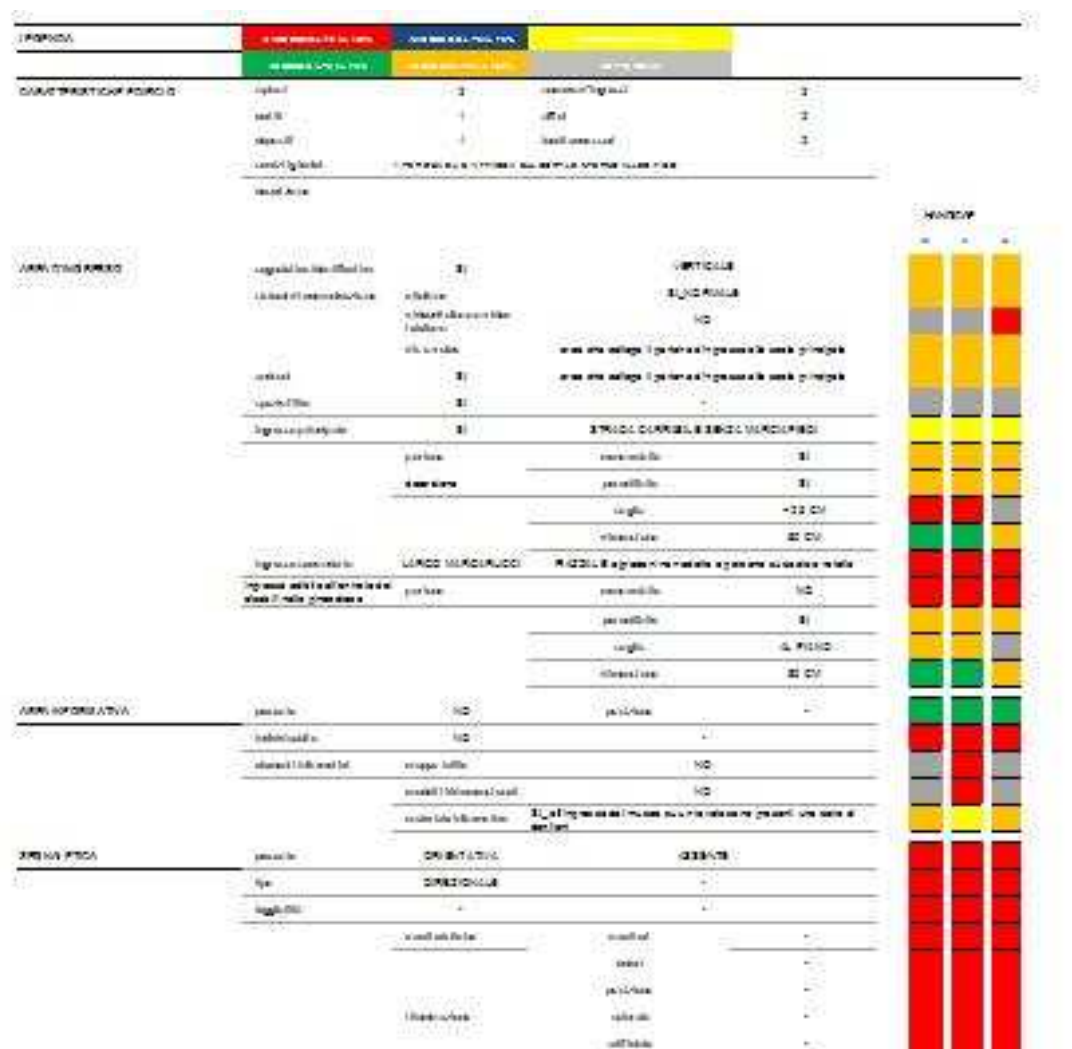
The function of technical and scientific work paid with development of a analysis methodology that addresses the issue of architectural barriers buildings linked by a practical point of view. Meaning can not to provide a design manual or suggest solutions but making a tool that allows you to assign a conventional considerations and subjective, a root num-

bers analysable and cannot be affected. To develop the methodology of analysis, were taken into account: standards, the requirements for accessibility and visitability the mandatory requirements and performance aspects that contribute to fruibility of buildings, of criteria anarchy hierarchy process and the possibility to use a study sample to test the validity process.

### 3. Analysis and discussion of main results

The analysis tool have developed a general information questionnaire to detect the presence or absence of architectural barriers at internal historic building and urban space connected to it.

The board articulated in a series of classes on relevant standards and requirements on architectural barriers to the phase of relief associated with a estimation process by means of indexes (according to the principles of AHP) that allows numerically evaluate the level of



accessibility and visitability of object study.

Figure 1. section board for the study of architectural barriers.

We use the 6-indices representing six ways of perceiving space of disabled people, considering the characteristics assigned of element found and the effect it has on issues of disability motor, visual and auditory.

Table 1. The means of indices

indice	definizione	spiegazione
1	inaccessible al 100%	it signals all the elements whose characteristics don't respect the prescriptions of the norms and the things that you/they miss for ren-dere a proper space for disadvantaged people
2	inaccessible al 75%	it signals the situations that him discostano as soon as from the complete inaccessibility
3	inaccessible al 50%	it represents an intermediary situation
4	accessible al 75%	it signals a condition of good quality but not yet of total accessibility
5	accessible al 100%	it signals the respect of the anticipated prescriptions from the normative one and of total accessibility of the space or the considered element
6	indifferent	It signals those situations whose characteristics, both in positive both in negative, they don't have some weight on the problem list of the analyzed handicap

The next step is the study of the distribution and recovery of indices in the board, as in the example:

					handicap motorio	handicap visivo	handicap uditivo
PERCORSO	TIPO	STRADA PEDONALE		VIA MINZONI	5	5	5
		STRADA CARRABILE CON PERCORSO PEDONALE		VIA ZARA	3	3	3
		STRADA CARRABILE CON PERCORSO PEDONALE		VIA ARMAROLI	3	3	3
		STRADA PEDONALE		VIA BUONACCORSI	5	5	5
	traffico	NO	STRADA A TRAFFICO LIMITATO	VIA MINZONI	5	5	5
		SI	4 SU 5 MACCHINE	VIA ZARA	2	2	2
		SI	4 SU 5 MACCHINE	VIA ARMAROLI	2	2	2
		NO	NESSUNA	VIA BUONACCORSI	5	5	5
	elementi sicurezza	marciapiedi	NO	VIA MINZONI	6	6	6
			NO	VIA ZARA	3	3	3
			NO	VIA ARMAROLI	3	3	3
			NO	VIA BUONACCORSI	6	6	6
		paletti di delimitazione	NO	VIA MINZONI	6	6	6
			SI	VIA ZARA	5	5	5
			SI	VIA ARMAROLI	5	5	5
			NO	VIA BUONACCORSI	6	6	6
		cordolo	NO	VIA MINZONI	6	6	6
			NO	VIA ZARA	4	4	4
			NO	VIA ARMAROLI	4	4	4
			NO	VIA BUONACCORSI	6	6	6

Figure 2. this is a part of the completed form with indexes

The distribution of index is counted with statistical function *counts.if* (how many times a number repeated all inside of a range of data available) that allows organizing data in function of the six indices and the three categories of comparison and to prepare for each item of an array of important data, and in terms of percentage expresses the quality in terms of accessibility of element detected. The data is then represented by a series of graphs.

Table 2. Application of statical function in the work

	motor handicap	visual handicap	auditory handicap
1=100%inaccessibile	counts.if (A2:A7;"1")	counts.if (B2:B7;"1")	counts.if (C2:C7;"1")
2= 75% inaccessibile	counts.if (A2:A7;"2")	counts.if (B2:B7;"2")	counts.if (C2:C7;"2")
3=50%inaccessibile	counts.if (A2:A7;"3")	counts.if (B2:B7;"3")	counts.if (C2:C7;"3")
4= 75%accessibile	counts.if (A2:A7;"4")	counts.if (B2:B7;"4")	counts.if (C2:C7;"4")
5=100%accessibile	counts.if (A2:A7;"5")	counts.if (B2:B7;"5")	counts.if (C2:C7;"5")
6=indifferente	counts.if (A2:A7;"6")	counts.if (B2:B7;"6")	counts.if (C2:C7;"6")

The calculated data were summarized in graphs to facilitate the study, such as the following:

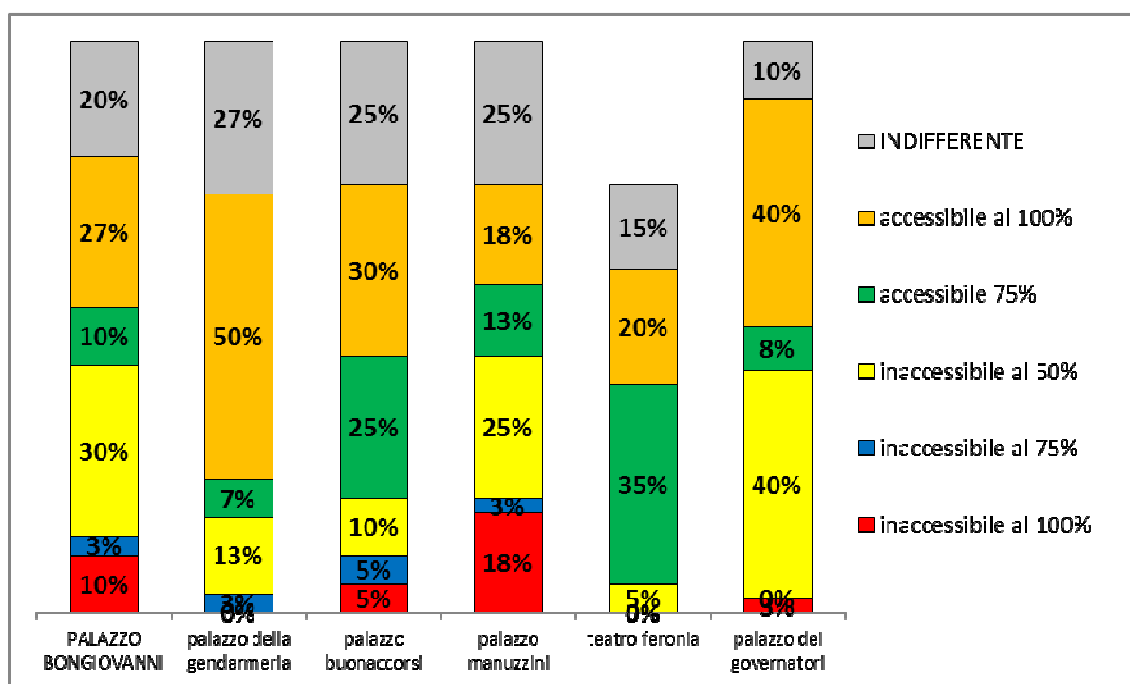


Figure 3. An example of the graphics used to study the data collected through the tabs applied to a sample of buildings.

## 4 Conclusions

The calculated data, with the application of the methodology of analysis on the sample, have permission to comment on the condition of the barriers architectural constraints and historic buildings law enforcement.

The analysis performed revealed that the design criteria of accessibility are not fully applied and that the design of restoration and enhancement of historic buildings, the achievement of accessibility not planned from the early stages of the project but rather is an act of verification. The solutions adopted are minor and are summarized in ramps removable and bathroom amenities. It is impossible about accessibility, but how much of visitability. The quality solutions adopted do not valuable and not always effective. In addition, buildings are not suitable solutions prepared to meet the needs of people with disabilities such as blind and deaf, whose deficit primarily concerned with the sensory sphere. Lacks adequate signage all internal as to the outside, assistive technology that allow disabled visual and auditory orientation space and learn independently.

The data showed that necessary, given the widespread state of inaccessibility of historic buildings, a review of laws BB.AA., to expand the sections addressing the needs of disabled visible and auditory. And also to start training to sensitize the technical issues of architectural barriers and spread the belief that to adapt a historic building accessibility does not mean make a wrongful act on work bens contribute to its enhancement

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