



Preventive
Conservation
in Historic Houses
and Palace
Museums:
Assessment
Methodologies
and Applications

SilvanaEditoriale

Preventive Conservation in Historic Houses and Palace Museums: Assessment Methodologies and Applications

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Preservation Policies for Historic House Museums Based on Prevention: the Brazilian Context

Abstract

The establishment of publicly accessible Historic House Museums requires preservation actions that do not only contemplate the building and its contents, but the relationship between them, thus ensuring that the maximum amount of information from the past will be passed onto the future generations. Once an historic house becomes a museum, the maintenance of its aspect notwithstanding, its function changes and its use is transformed. These changes pose a great challenge for the management of its daily life in what concerns the balance between preservation and access. Founded in 1930, the Casa de Rui Barbosa Museum is considered to be the first historic house museum in Brazil established and managed by the public sector. The joint preservation of the historic structure and its collections has been guided by a preventive conservation plan for more than a decade. This process includes inspection, diagnosis, monitoring and reviewing of preservation actions, in which the building, collection, gardens and systems are integrally linked. In this sense, formulating preservation policies must consider prioritise the mitigation of deterioration and damages to the building and the collection, at the same time ensure the enjoyment of the visiting public. With more than 300 historic house museums, Brazil is yet to turn the preventive approach to conservation into reality. This work explores the limits and possibilities of implementing a preventive conservation policy for Brazilian historic house museums based on accumulated experience by Preventive Conservation Plan of Casa de Rui Barbosa Museum in identifying risks that threaten the joint preservation of buildings and artefacts and in developing strategies for mitigating those risks.

Keywords

Casa de Rui Barbosa Museum, preservation policies, risk management, joint preservation.

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Casa de Rui Barbosa Museum, in Rio de Janeiro, is considered the first historic house museum in Brazil, as it was opened to the public on August, 1st, 1930.

Built in 1850, the house is a national monument, and its last owner was Rui Barbosa, a prominent lawyer, writer and statesman in the late 19th century and beginning of the 20th century. Born in Salvador, on November 5th, 1849, Rui Barbosa travelled a lot in his early years,

and lived in Buenos Aires, Paris and London. Owner of a remarkable intellectual ability, he graduated in Law in 1870. Rui Barbosa went into advocacy, journalism and politics, and was considered a man ahead of his time, which fell short of his civic virtues and talent. A freedom activist, he defended equality, ethics and culture.

He was the main author of the first Brazilian Republican Constitution. He ran for presidency twice, but did not succeed. The first of his campaigns for Presidency was called “Civist,” that being the first time there had been popular support for democracy in Brazil. After that, and until today, he is regarded as a popular hero. Rui Barbosa also took part of the Second Conference on Peace in Hague, in 1907, representing Brazil as Ambassador Extraordinary, when he stood up for the sovereignty of all States within the international judicial order. By that time, his abilities as a public man were internationally acknowledged, and in 1918 he was granted the Grand Officer badge of the National Order of the Legion of Honour from the French Minister Paul Claudel [Lacombe, 1984].

His personal life was marked by the great love that perpetuated his union with Maria Augusta Viana Bandeira, with whom he had five children and a perfect family life. As a hobby, he enjoyed looking after his garden, planning and decorating the house. During his lifetime, he gathered an assorted collection including paintings, sculptures, wooden furniture, personal belongings and a library collection with thirty-seven thousand books.

After his death, the Brazilian government purchased the house, along with his library collection, granting public access to the ensemble. Casa de Rui Barbosa Museum now receives approximately ten thousand visitors annually and is part of a cultural research institution, with a varied collection including book collection, archival collection, museum, historic building and garden, of the Brazilian Ministry of Culture: Casa de Rui Barbosa Foundation.¹ Since 1998, a Preventive Conservation Plan guides the joint preservation of the historic building, gardens and its collection.

The aim of this article is to bring a small report on the Preventive Conservation Plan, its implemented strategies and their results, and the planning steps towards the development of a preventive conservation policy for historic house museums in the Brazilian conservation field.

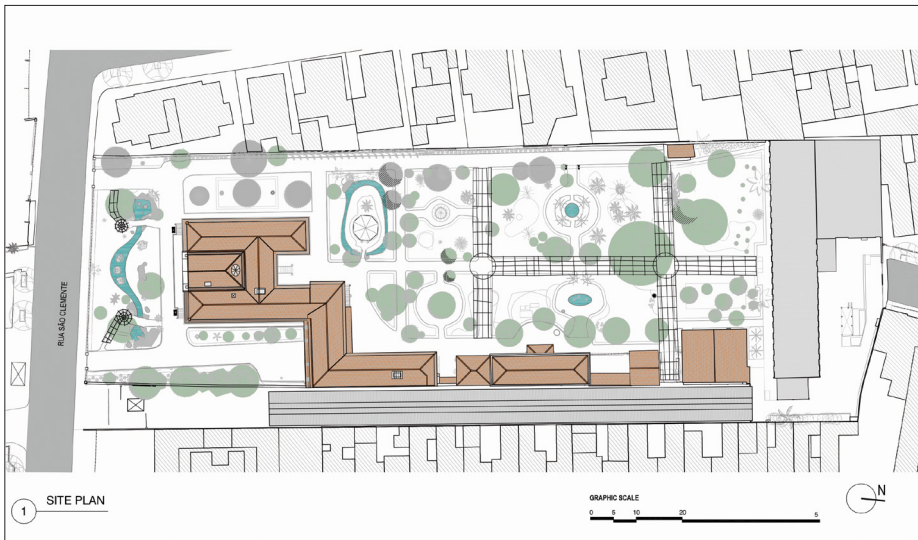
The Site

The house is located in South-Eastern Brazil, in the city of Rio de Janeiro, currently the second largest city in Brazil, in the neighbourhood of Botafogo. Rio de Janeiro has an impressive natural beauty with quite a diverse topography, consisting of high escarps, hills and valleys, various rock formations, which follows the Guanabara Bay, including natural lagoons and a wide urban forest.



Fig. 1
Casa de Rui Barbosa
Museum – main facade.
(© Fundação Casa de Rui
Barbosa / Claudia Carvalho)

Fig. 2
Casa de Rui Barbosa
Museum – site plan.
(© Fundação Casa de
Rui Barbosa / Núcleo de
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The annual mean temperature of Rio de Janeiro is 25°C, and the annual mean relative humidity is over 70%:

“The overall climate of Rio de Janeiro is classified as Tropical Savanna (Aw) by the Köppen-Geiger climate classification system [...]. Seasonal climate is distinguished by temperature and rainfall: the period from November through April constitutes the very hot-humid season, while May through October is the hot-humid season” [Maekawa *et. al.*, 2015, p. 314].

In the 19th century, the city went through a quite large urban

operation. Then, the urbanised area started its expansion towards the north and the south, and in the early decades of the 20th century, the urban growth passed through the Botafogo Valley, which was linked to the Rodrigo de Freitas Lagoon. At the beginning of the 19th century, wealthy families, the aristocracy and rich merchants began to move to Botafogo neighborhood, where the house is located, in São Clemente street.

Botafogo developed along São Clemente street, which was established as one of the city's most important thoroughfares. As the city changed, Botafogo became a densely populated residential zone, and Rui Barbosa's property, situated only 600 meters from the Guanabara Bay shoreline, give us testimony of the time when it has been built, portraying the early years of the south zone urban occupation. In the 1970s, with the urban growth boom, the Museum's surroundings were heavily altered, accelerating deterioration processes caused mainly by air pollution, vibration, thermal radiation, and poor soil surface drainage.

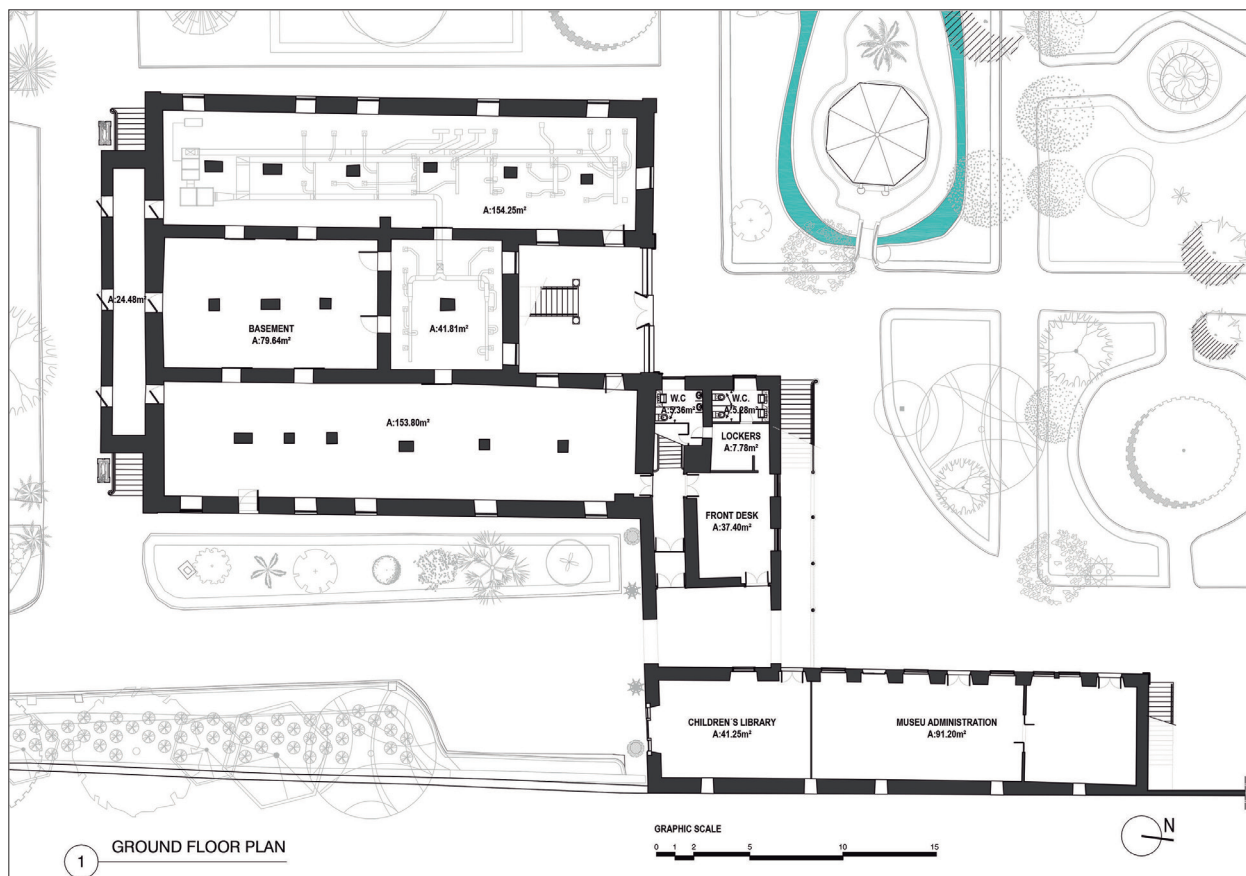
The Building

Bernardo Casemiro de Freitas, a Portuguese trader, set up the museum original building in 1850. In 1893, Rui Barbosa purchased the house where he lived with his family from 1895 to 1923. The house is a typical example of the architectural transformations introduced by the arrival of the Artistic French Mission brought to Brazil by the Portuguese King Dom João, the VIth, in 1816. It expresses the continuity of the Luso-Brazilians constructive standards of the colonial period and the introduction of neoclassical repertoire, such as pediment, architraves, Roman arch and sculptures. Its fabric presents traditional solutions, such as external self-supporting walls made of massive bricks, stones and mortar, internal partitioning panels in lath and plaster, a wooden structure and roof in French tiles (fig. 1).

The volume is composed of two conjugate bodies, one U-shaped and the other L-shaped, aligned with the left side of the terrain. The U-shaped body has a high basement, which separates the occupied spaces from soil moisture. It has almost 2.000 square meters, and a 6.000 square meters garden surrounds it (fig. 2).

The garden is currently one of the few green areas in Botafogo. Inspired by the French landscape designer Auguste Glaziou's romantic gardens, it is historically and artistically relevant as a domestic garden with such a treatment. The front garden is more elaborate, providing nobility and honour to the house. The backyard, which provides a domestic atmosphere, presents a metal and wood structure that supports grapevines, and has many fruit trees and several species of flowers, especially roses, Rui Barbosa's favourite.

Besides the preservation of Rui Barbosa's memory, the historic



house museum reflects the lifestyle of the urban upper classes in the 19th century. The interior follows the traditional layout of the period, in which the social area is located at the front of the house, and the private spaces are located at the back (fig. 3, 4).

The decoration presents stucco linings, wallpapers, hydraulic tiles and cast iron elements. The house's noblest chambers are in the upper levels. It is worth mentioning the service wing – with kitchen, restrooms and the servants' rooms. The highlight, the “Coeur” of the museum is the Library, which remains in their original location (fig. 5).

Preventive Conservation Plan

After its opening as a public space, the house undergone two major interventions, the first one was in the 1970s, and the second in the later 1980s. From the end of the 1990s, the preservation actions seek to integrate the historic building and the collections, considering prevention as a way to minimise deterioration processes, avoiding invasive interventions and ensuring their transmission to future generations in a sustainable way. The Preventive Conservation Plan has consolidated that. This plan seeks to identify the causes of deterioration through

Fig. 3
Casa de Rui Barbosa
Museum – Ground Floor
Plan. (© Fundação Casa de
Rui Barbosa / Núcleo de
Preservação Arquitetônica)

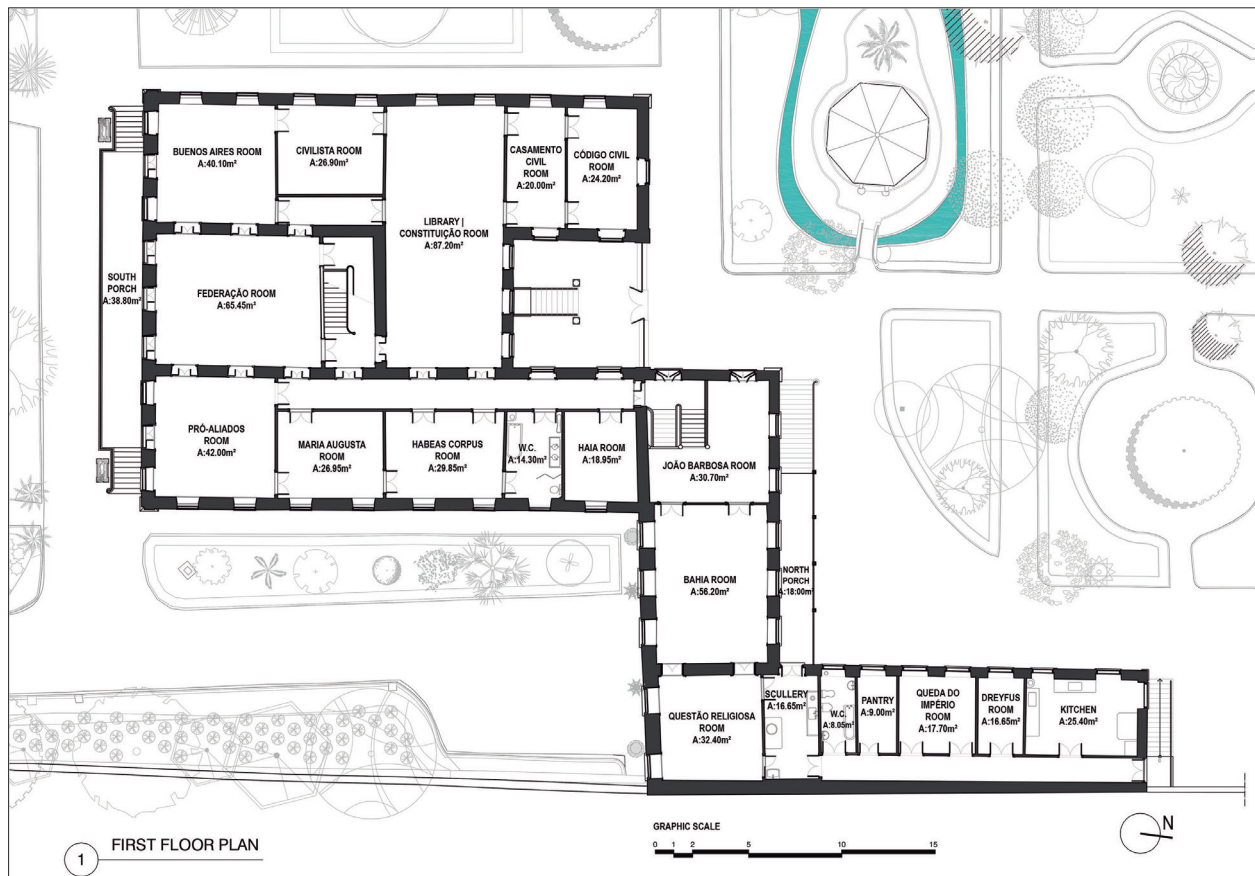


Fig. 4
 Casa de Rui Barbosa
 Museum – first floor plan.
 (© Fundação Casa de
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 Preservação Arquitetônica)

Fig. 5
 Rui Barbosa's library.
 (© Fundação Casa de Rui
 Barbosa / Claudia Carvalho)





monitoring, inspection and survey, as well as to establish mitigation strategies, thus avoiding emergency actions. The first actions targeted the reduction of humidity through the roofs, and the control of biodeterioration through a combat plan addressing termite's infestation. Later, there had been renovations to the garden's drainage system, and restoration of the external windows.

The museum interior environment is moderated by the building's large thermal mass, natural ventilation and natural lighting. The book collection experienced large temperature and humidity fluctuations, biodeterioration and air pollution damages. The major concern of the Plan was to keep the Library in a good conservation environment, without neglect the preservation requirements for the historic building and the human comfort needs for the visitors. An environmental control strategy was considered fundamental for the preservation of the building and the collections [Cassar, 1995].

As a first step, we went through a comprehensive monitoring of environment and condition assessments in order to document conditions of the building envelope, historic interior and collection assessment. The perspective adopted reflects the complex relations between the collections sensitivity, the buildings performance and the effects of several factors on the collection, such as the building itself, the environment, its use, the practices and policies related to management, operation and visitation [Dardes *et al.*, 1998].

The results of this assessment showed that the water was the most important agent of deterioration we need to face, because of the humid tropical climate conditions. Thus, the main goals of the Preventive Conservation Plan was to avoid humidity from soil and from covers, control the climate, define a conservation strategy for architectural surfaces, and develop a continuous process to document the interventions and monitoring their performance. Since 2005, the Preventive Conservation Plan has research-based strategies.²

Fig. 6
System installation on the basement. (© Fundação Casa de Rui Barbosa / Claudia Carvalho)

Fig. 7
Supply air diffusers. (© Fundação Casa de Rui Barbosa / Claudia Carvalho)

A great step forward in this approach has been the project for the climate control of Rui Barbosa's library. It was initiated in 2004, and developed between the Getty Conservation Institute (GCI) and Casa de Rui Barbosa (FCRB) with a goal of improving the environmental conditions of the book collection. Assessments of the building, the collection, and the environment provided essential information for developing an improvement strategy with an integrated approach that combined the building, collection, and the climate control equipment as one environmental system. Conservation strategies were defined after assessments recommendations, including preservation works in the building envelope, climate improvements in the basement and attic, repair of the bookcases and maintenance of the book collection. In 2006, a ventilation and dehumidification system was installed, with a dehumidifier in the basement, supply air diffusers and return air grilles positioned along visitor paths, and an exhaust fan in the attic (figg. 6, 7 – system installation).³

All the interventions for the climate system installations respected the preservation current principles. This system established and maintained a safe environment with a stable relative humidity at less than 65% RH and temperature variations between 22°C and 28°C [Maekawa *et al.*, 2009].

A risk management approach was adopted in 2012 in order to broaden the perspectives of preventive actions, especially concerning the most difficult decisions; to identify the risks to the preservation of cultural heritage in order to reduce them effectively, according to available resources; and to establish resources for an institutional policy of long-term preservation, consolidating the efforts already made.

Due too the very specific context of the Casa de Rui Barbosa Foundation, a multidisciplinary perspective was requested to carry the process. The main objectives to be achieved were the expansion of the perspectives of preventive actions by the integration of collections, buildings and historical sites departments. It was also an opportunity to enhance the skills of staff members related to the integration of research and practice. We applied a model, known as ABC Method, which the overall structure suggests five sequential steps: establish context, identify risks, analyse risks, evaluate risks, and treat risks. There are two ongoing processes: communicate and consult, monitor and review. Three components are used to quantify a collection risk: the rate or frequency, the loss of value to each affected object, and the fraction of the collection affected. A diagram has been developed to aid the quantification of the relative value of each fraction of the collection that is affected by a specific risk, called value pie chart [Michalski and Pedersoli, 2016].

The risk assessment was carried out by a working group on risk management composed by architectural preservation specialist, collections

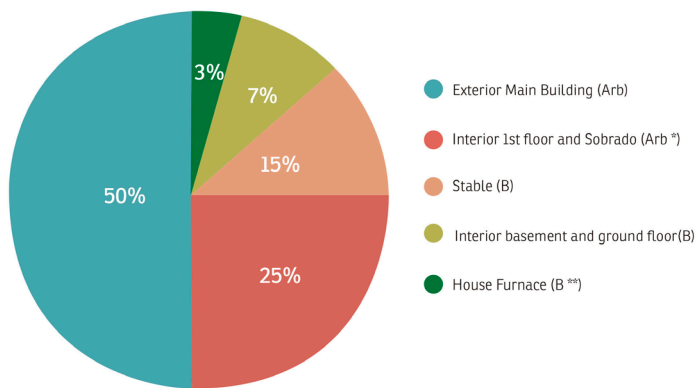
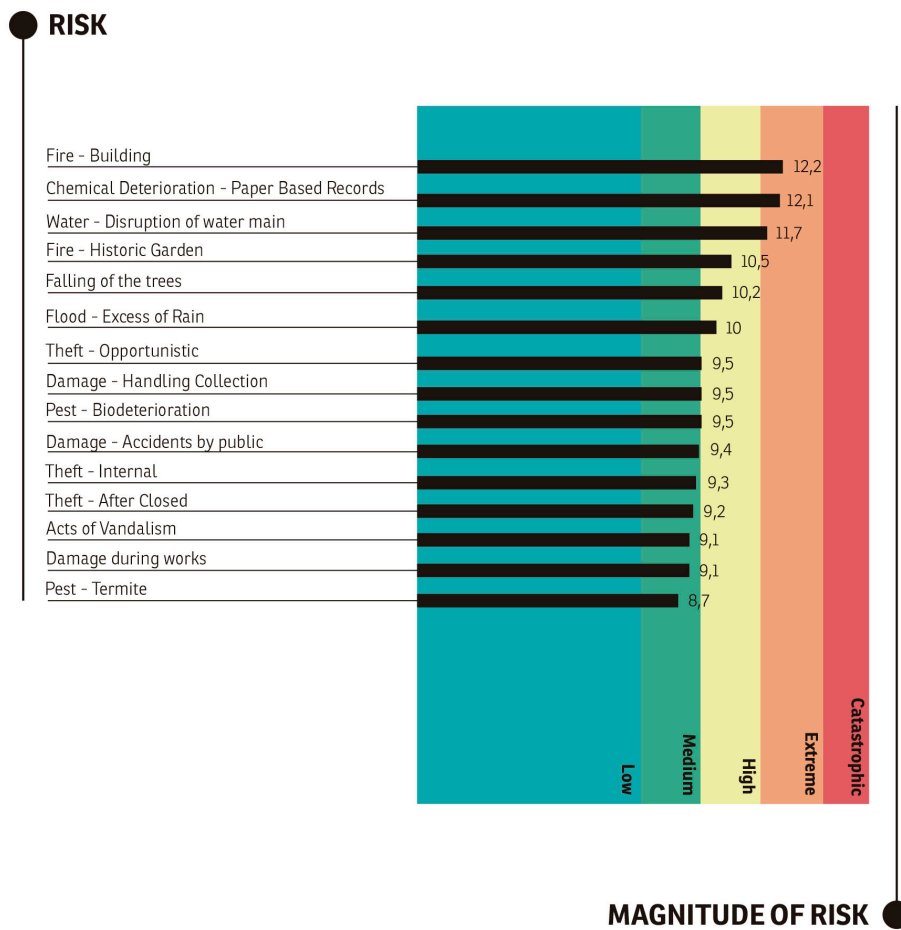


Fig. 8
Value pie of historic building Casa de Rui Barbosa Museum – ground floor plan. (© Fundação Casa de Rui Barbosa / Núcleo de Preservação Arquitetônica)

Fig. 9
Risk to Casa de Rui Barbosa Museum in order of decreasing magnitude of risk. Casa de Rui Barbosa Museum – ground floor plan. (© Fundação Casa de Rui Barbosa / Núcleo de Preservação Arquitetônica)



curator and conservator-restorer and related research assistant. This working group has been trained in the use of ABC Method, by José Luiz Pedersoli Jr (conservation scientist and consultant in risk management for cultural heritage) who coordinated the process. Conducted during eight months in 2012, the group, with about 13 people, identified and prioritised key risks facing the historic house museum, its garden and its collection.⁴

The most complex task was the quantification of the relative value of the different elements of the overall Foundation collection, which required a more detailed characterisation of each item, as well as an agreement between the professionals involved. It was very important to define their importance and relative value for the Institution, its mission and its public, including the various categories of value: historical, artistic, aesthetic, social, religious, economic, scientific, etc.

In this sense, the first level of evaluation concluded that the total value of cultural heritage protected by the Institution resides in the fact that they are gathered under the same management protocols. Thus, it was concluded that, for example, the historical building has the same relative value as the archival collection, since both have as their origin the patron of the Institution. In this way, the historic buildings contribute with 16.67% of the total value of cultural heritage of Casa de Rui Barbosa Foundation.

The subcomponents of the historic building represented in the value pie graph were analysed in detail to quantify the relative value of each component (fig. 9).

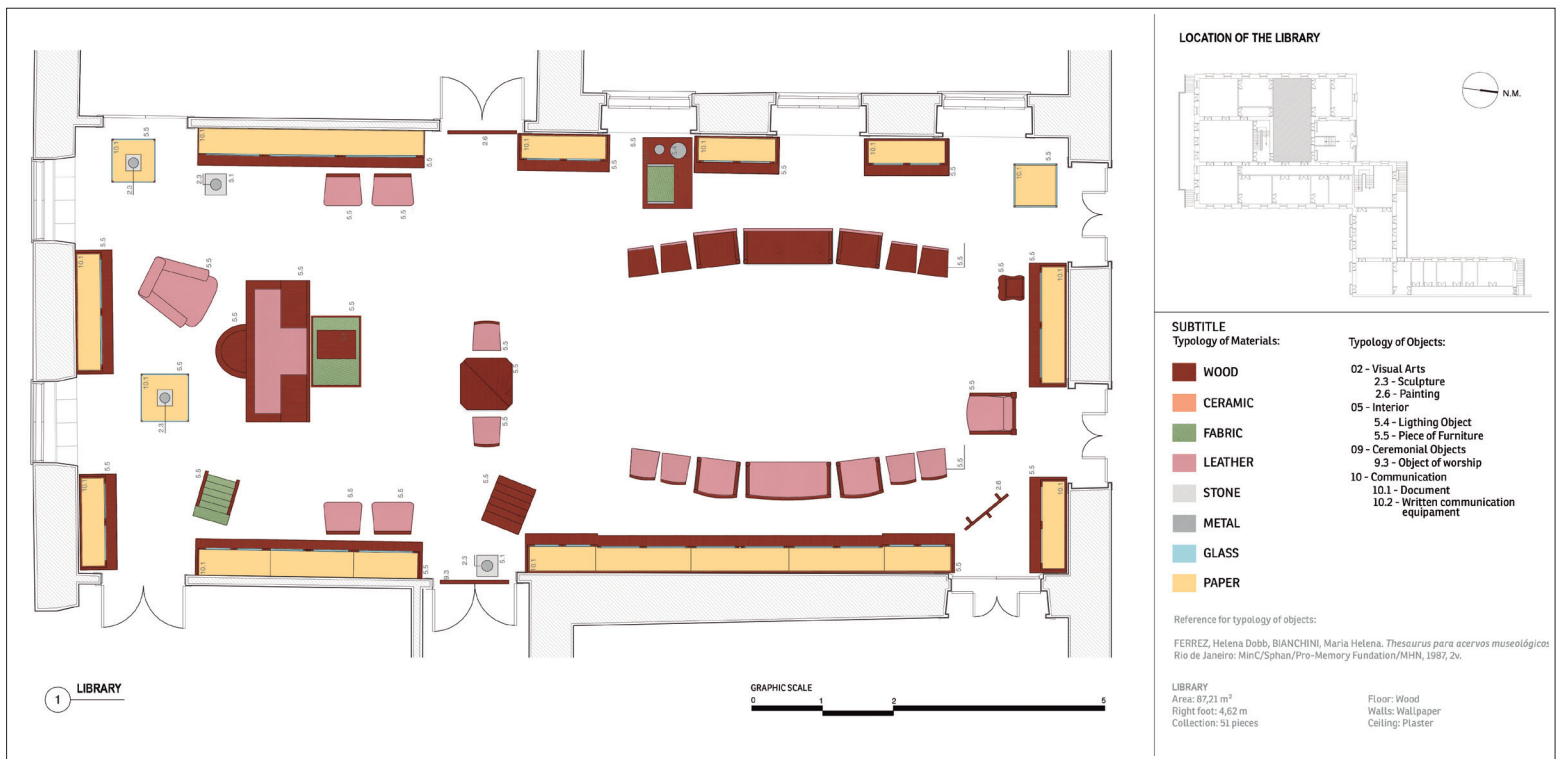
To better understand the value pie graph it is necessary to clarify the used criteria to develop this graph. The authenticity of each part has been assessed, and four categories were established: elements that preserves the original characteristics of the period style, such as the exterior of the main building; elements that preserves the ambience and the original compartmentation, such as the interior of the 1st and 2nd floor, elements with a high degree of change such as interior basement and ground floor and elements that have been completely changed, such as house furnace, current museum café.

A quantitative evaluation followed this process, in which the dimensions, in square meters, were identified, of each element.

Concerning the historic house museum 15 risks were analysed: 3 were identified as of extreme priority, 3 of high priority (fig. 8).

By the collaboration among various professionals, including the institutional managers, we expected to develop a consistent preservation policy based on risk management approach, for historic buildings that house collections. The experience gave us the ability to identify risks, comprehensively, to estimate correctly their magnitude and associated uncertainties, to devise cost-effective solutions to treat those risks. As an additional level, it allowed a spatial resolution making possible to build increasingly more detailed pictures of the situation, especially for those risks that affect locally, causing punctual losses or affecting only limited surfaces or specific elements (fig. 10).

Following the assessment, the project entered a risk management phase with the generation of strategies to reduce each risk. Many options were proposed and evaluated. Each option was analysed to predict



to what degree it would reduce the magnitude of the risk. The cost of implementing the option was also estimated. The cost-effectiveness of each strategy – the reduction in risk magnitude divided by cost – was determined. Options that best addressed the priority risks (extreme and high risks) were recommended [Carvalho *et al.*, 2013].

Just to mention an example, the Foundation made a decision, based on the cost effectiveness, to refurbish the electric system of the historic house museum, because similar to many museums and other institutions holding cultural collections in Brazil and abroad, the greatest risk of extreme priority is that of a large fire which affect a significant fraction of the value collection and typically results in total or near total loss of value in the affected items.

A recent Brazilian publication, *Historic Houses in Brazil*, from the DEMHIST BRASIL [Carvalho, 2013], mapped out the existence of more than 300 museums – as in Brazil, including houses, palaces, common houses, farms and also palaces. However we do know the importance of preventive conservation to manage those important heritage, there is not a regulatory instrument nor a specific methodological base. Our commitment is to contribute to implement this methodological approach, using Casa de Rui Barbosa experience as a reference. Our experience has been discussed among conservation professionals, as the preventive approach is proved to be efficient, sustainable and reliable.

Conclusion

This experience demonstrates that many actions to mitigate risks can be relatively simple, restricted to the technical level, while others, however, will require the participation of other management bodies, some

Fig. 10
Library floor plan with the indication of the collection.
(© Fundação Casa de Rui Barbosa / Núcleo de Preservação Arquitetônica)

even from outside the Institution. Use the risk management approach can be useful to integrate the management and also the budgetary control processes that are continuous in the Institutions. Our experience also demonstrated that the ABC method is applicable to buildings that house collections.

As observed by Robert Waller, as the risk management approach provide a clear base for requesting resources, it can be interesting to integrate a preservation policy [Waller, 1995].

Our objective, through the experience we developed at Casa de Rui Barbosa Museum is to foster a preservation policy for historic house museum in Brazil that relies on the identification of risks that threaten the joint preservation of buildings and artefacts and in developing strategies for mitigating those risks effectively, according to available resources, articulating multiple visions, conceived as a continuous process.⁵

Endnotes

[1] The mission of the House of Rui Barbosa is the development of culture, research and teaching, dissemination and worship of the work and life of Rui Barbosa (Law 4,693, April 6, 1966). In this way, the institution can contribute to the knowledge of cultural diversity and to the strengthening of citizenship, ensuring the implementation of the other policies of the Ministry of Culture (www.casaruibarbosa.gov.br).

[2] Plan has research-based strategies, and the results are available at the specific website (www.casaruibarbosa.gov.br/conservacaopreventiva).

[3] The climate system for the Rui Barbosa's library was a unique sustainable solution for climate improvement in Brazil, and paved the way to a wide application of this low-cost, relatively simple climate improvement strategy in cultural institutions in hot and humid climates.

[4] José Luiz Pedersoli Jr., a Brazilian conservation scientist, was hired and a team of members from the various sectors of the Casa de Rui Barbosa Foundation worked to support contracted consulting. José Luiz Pedersoli worked in the development of ABC Method, and was responsible for the value pie conception.

[5] The author acknowledges technical contributions of Ms. Isabel Passos, architect of the research project Casa de Rui Barbosa Museum: Preventive Conservation Plan.

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