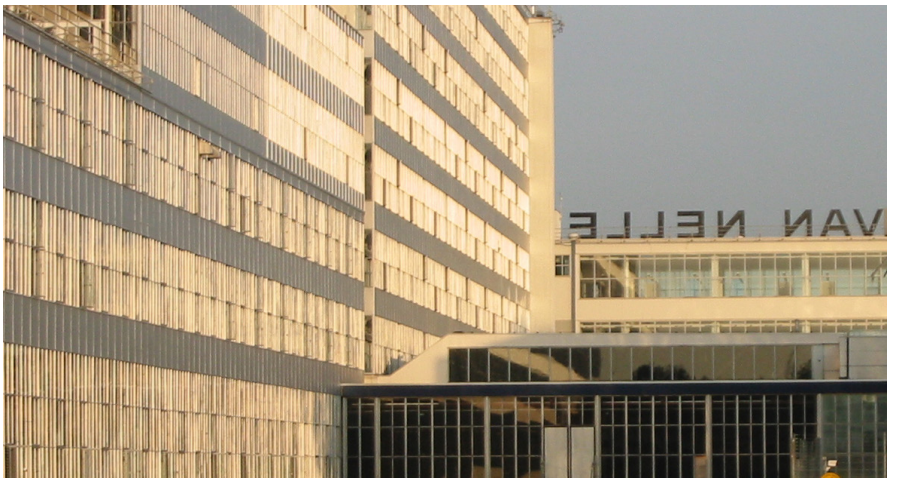

Modern Building Reuse: Documentation, Maintenance, Recovery and Renewal

Vincenzo Riso, editor

Universidade do Minho
Escola de Arquitectura

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Proceedings of the Advanced Training Seminar *Architecture: Sustainability, Conservation and Technology*

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The Van Nelle Factory, Rotterdam, after restoration in 2003, rear overview.
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Index

Casa de Serralves, interior view after conservation by Álvaro Siza, 2014. TF

Some considerations on the preservation of 20th century architectural heritage

Teresa Ferreira

These brief notes relate to the shared reflections and discussion that took place at a seminar held in 2011 at the Escola de Arquitectura da Universidade do Minho, which dealt with the general context on the safeguarding of 20th century architectural heritage, with special emphasis on conservation and maintenance practices. These considerations are not intended to be conclusive or systematic, as they do no more than highlight some of the questions raised in the course of the debate. The seminar involved a discussion of both theoretical and methodological issues, followed by the presentation of concrete examples.

The preservation of 20th century heritage is now one of the most challenging debates taking place in the field of architectural conservation. Among others,[1] the ICOMOS International Scientific Committee on 20th Century Heritage laid down some useful guidelines for its safeguarding and conservation, which are summarised in the *Madrid Document* (ICOMOS ISCAH20, 2011).

Despite its international recognition, 20th century architecture and particularly in Porto is frequently a *heritage at risk* – or *prizewinning ruins* (Tavares, 2012) – as it belongs to a recent past that has not yet been sufficiently recognised or studied. Most of it remains unprotected by structures or laws designed to guarantee its safeguarding,[2] and it is still not afforded due recognition by public opinion. In this way, it would be interesting to discuss ways of transforming this problem into an opportunity, by implementing proactive (and not reactive) measures for its safeguarding.

FIG.1 Álvaro Siza, Casa de Chá da Boa Nova, 2013. Photo by Attilio Fiumarella.

Nevertheless, some positive programmes have been implemented in the form of inventories and surveys undertaken by DOCOMOMO Iberico, *Ordem dos Arquitectos* (*Inquérito à Arquitectura do século XX – IAPXX*), SIPA (*Sistema do Inventário do Património Arquitectónico*) and the recent listing of 20th century buildings carried out by *Direcção Geral do Património Cultural* (DGPC, former IGESPAR), among others.[3] Moreover, the number of seminars,[4] exhibitions, publications and studies on these subjects has been gradually increasing. However, these seem to be insufficient, as only a few buildings are protected and even some of these are at risk, because of their lack of use or maintenance, as well as accidents or intrusive transformation.

But what is the specificity of this kind of heritage? What are the differences between this and other period heritage? How should it be identified and how best can it be safeguarded?

FIG.2 Eduardo Souto Moura, Casa no Gerês, 2012. Photo by Leandro Oliveira.

Generally speaking, despite its diversity, 20th century architecture (especially since the modernist period) stands out both for its scale and its quantity (including serial production), its new architectural programmes and typologies, the new building materials and constructive techniques that start to be employed (or old materials used in an innovative way) and which normally age faster than pre-industrial construction (Boriani, 1997).

In some contexts, such as that of Porto, we can find the persistence (approximately until the 1960s) of hybrid constructive solutions which incorporate industrial and pre-industrial systems and materials (stone, limestone plasters, concrete, wood, metals, glass, plastic, aluminium, etc). Moreover, also in Porto some modern buildings form the 40s and 50s have very interesting contextual relationship with its pre-existing urban setting (in terms of scale, proportion, materi-

als and textures) for instance as in the Edifício da União Eléctrica Portuguesa by Januário Godinho (1952-55) or in the Edifício Parnaso by José Carlos Loureiro (1954-1956), listed since 2013.

As far as the safeguarding of this heritage is concerned, one operative instrument is the *Carta do Património*[5] (Heritage Map) published by the Porto Municipal Council, as it is directly linked to regulatory plans and urban municipal policies (Plano Director Municipal). The map identifies heritage based on criteria such as antiquity, rarity, authenticity, artistic and scientific value, the authorship of the project, as well as the aesthetic quality or innovative character of the architecture. Moreover, this map includes not only listed buildings, but also other buildings and areas with patrimonial interest such as UNESCO World Heritage, archaeological, urban or architectural protected areas of interest, natural heritage, among others. In this way, this tool makes it possible to safeguard buildings that are not protected by other governmental regulations.

Another support provided by Porto Municipal Council is the *Carta dos Bens Patrimoniais*[6] which has no legal determination but is intended to provide the public with information about historical and architectural heritage of artistic value in the city (churches, palaces, public buildings, housing, public art, among others). Furthermore the map is permanently updated by the *Divisão Municipal de Museus e Património Cultural* and is linked to the inventorying of forms of characterisation of buildings and artefacts.

Through an analysis of these maps, we can conclude that most of the buildings with heritage value in the city of Porto date from the 20th century, naturally with a greatest incidence on the 19th/20th century areas of the expansion of the city. Furthermore, we can see that approximately 1/3 of the listed buildings in the city of Porto are from

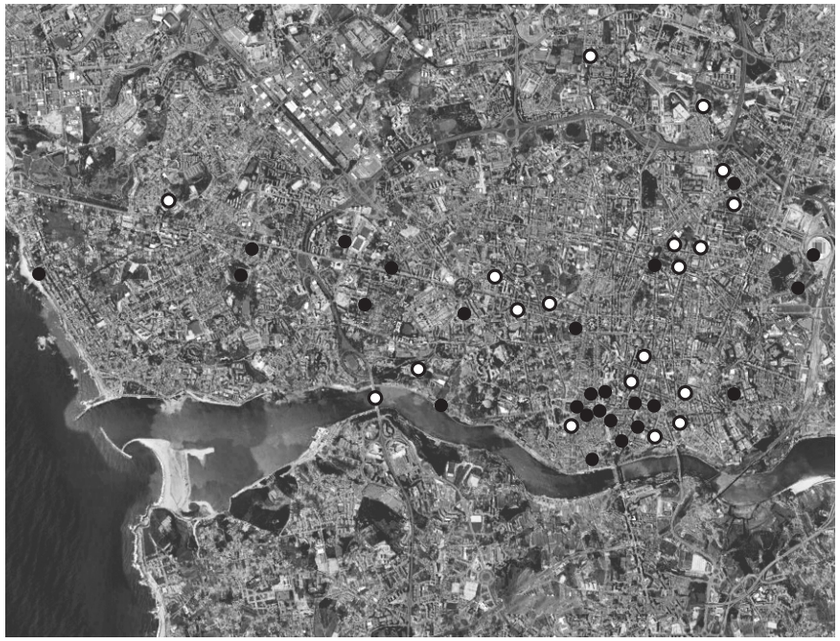

FIG.3 Map with indication of listed heritage of the 20th century in the city of Porto, January 2013.

FIG.4 & 5 Januário Godinho, União Eléctrica Portuguesa, 1952-1955. Photo by Carlos Albuquerque Castro; Edifício Parnaso, José Carlos Loureiro, 1954-1956. Photo by Rodrigo Rodriguez.

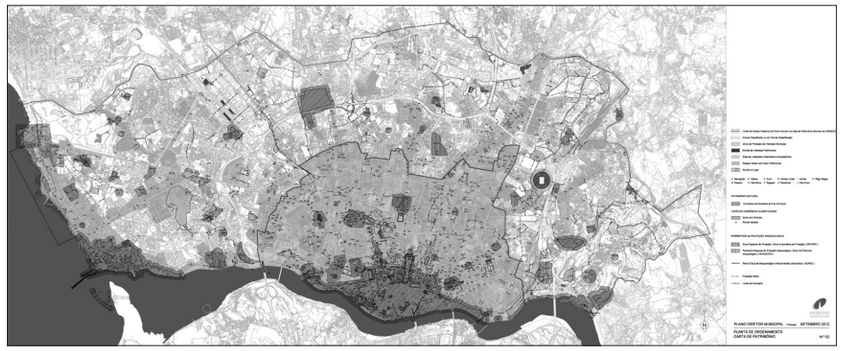

FIG.6 *Carta do Património* (Heritage Map) of the *Plano Director Municipal* of Porto. Source: *http://goo.gl/w1ksuQ*

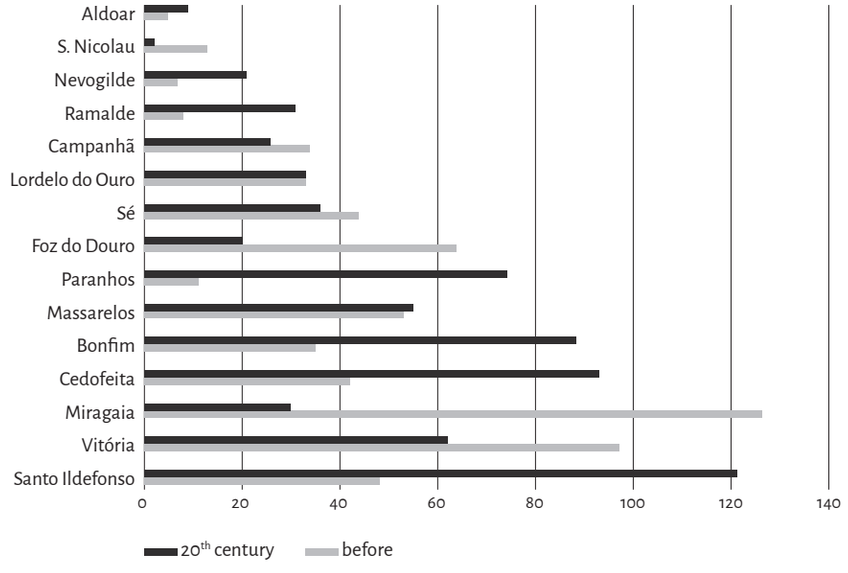

FIG.7 Graph showing the distribution of 20th century heritage in the city of Porto in the *Carta do Património*. Domingas Vasconcelos.

the 20th century (32%), even though more than half of the buildings with patrimonial value identified in the *Carta do Património* were built in the 20th century (53%).[7] These numbers underline the progressive importance of specific attention and knowledge for the safeguarding and conservation of this kind of heritage.

But how to conserve 20th century heritage and how to manage the inevitable transformation? Which criteria should be followed and what are the differences when compared to intervention activities undertaken on buildings of different periods? Should we conserve design authenticity or material authenticity?

This has been a matter of intense debate over the last 20 years,[8] and there has been some consensus achieved in the general recognition that existing philosophical approaches, such as conservation charters, are broadly applicable to the conservation of 20th century heritage; still, there are some specific technical challenges (innovative construction and use of materials) that require careful case-by-case consideration. Hence, as in other architectural periods, the methodology and criteria of intervention should follow an architectural reflection based on a casuistic approach and, conflicts between design and material authenticity must be balanced, with significance at the core of decision making (Macdonald, 2009: 8).

However, some authors maintain that, in the conservation of 20th century architecture, there has been a prevailing trend (particularly in relation to the so-called iconic buildings) to give special privilege to the formal value recovered by restoring an *original* image and neglecting its material and intangible values (ageing, uses, transformations), integrity, authenticity and aura (Dezzi Bardeschi, 1995: 12; Capitel, 2009: 77-79).

Hence, the conservation of 20th century architecture, as well as of more ancient buildings, requires prior in-depth knowledge material signs, "including physical location, design, construction systems and technical equipment, fabric, aesthetic quality and use", but also its intangible values, such as "historic, social, scientific or spiritual associations, or creative genius" (ICOMOS ISCAH20, 2011: 1). In looking for a comprehensive approach to 20th century architectural heritage ("total architecture"), the *Madrid Document* also stresses the importance of identifying and accessing "all components of the heritage site, including interiors, fittings and associated art works" (ICOMOS ISCAH20, 2011: 1).

Acknowledging that function and programme are essential for any kind of architectural intervention, an important consideration regarding the conservation of 20th century architecture is its re-adaptation and its re-use. Modern programs (such as towers, factories, cinemas, garages, among others) are eventually more difficult to re-use because they were constructed for a very specific situation with a functionalist approach ("form follows function"), so that it may become more challenging to find compatible uses, especially in the case of very large-sized buildings.

As far as inevitable transformations and additions are concerned – namely the necessary adaptation of the building to new uses and requirements – the *Madrid Document* recalls the principles of contextual design in continuity with the pre-existing attributes (character, scale, form, setting, composition, proportion, structure, materials, texture, colour). Even though these additions may be discerned as new or identifiable upon closer inspection, they should be "developed to work in harmony with the existing; complementing not competing" (ICOMOS ISCAH20, 2011: 4).

In this matter, Álvaro Siza makes an interesting consideration about the conservation of his earlier work of the *Casa de Chá da Boa Nova* (1958-63): even though nowadays he would have designed it differently, he realizes that it is the project of "another" author and so he considers that we should respect the coherence and the integrity of the pre-existence. Hence, in his words the interior strength of the building should guide the intervention, and "conserving the integrity of what exists is very important" (Siza, 2011: 186,188).

But how to conserve buildings designed for a short life cycle, how to repair experimental technologies and materials, how to slow down their ageing? How to make plans for their cyclical repair, planned conservation and maintenance over time? And how can we best respond to current regulations and comfort standards?

As previously mentioned, 20th century architecture starts applying new industrialised technology and materials – such as exposed concrete, plastics, different types of glass, fibreglass, synthetic rubber, metals – or traditional materials in an innovative way. Consequently, the conservation of 20th century architecture requires specific research and knowledge of non-traditional materials, their condition and deterioration processes.

Interesting research is being undertaken in this field: for example, an interdisciplinary study on exposed concrete (involving both engineers and architects) by the *Politecnico di Milano* that seeks to improve knowledge and identify possible causes of its deterioration, thereby providing better technical solutions for its conservation and repair (Di Biase, 2009).[9] Among other aspects, an important contribution of this research is the definition of a specific and shared glossary on the manifestations of decay,[10] illustrated with images and examples from different European and non-European countries, such as India and Brazil.

FIG.8 Francesca Albani; Teresa Ferreira; "Casa de Chá da Boa Nova" in Calorina DI BIASE (a cura di), *Il degrado del calcestruzzo nell'architettura del Novecento*, Santarcangelo di Romagna: Maggioli, 2009.

FIG.9 - 10 Casa de Chá da Boa Nova during conservation intervention, 2014. Photos by Teresa Ferreira.

Considering the vulnerability of modern heritage to accelerated deterioration caused by material, formal and technological characteristics (such as built-in material problems and a lack of maintenance), preventive and planned maintenance strategies are vital for its conservation and to reduce long-term repair costs (Canziani, 2009). Ordinary maintenance can also be a useful instrument for preventing decay and material damage (and thereby increasing preservation), as well as for improving local participation, education and employment by reactivating professional craftsmanship and construction skills.

As Álvaro Siza also says, "the way in which we have lost the habit of maintaining houses is very alarming. Basically, it's a cultural problem. Until we create an environment, such as the one that exists in the Netherlands, for instance (when spring comes, all you see is people painting windows and doors, and plastering), until we have the possibility of creating this habit and find the resources to do so, it's clear that, on one hand, you will recover some heritage, but, on the other, you also begin to accumulate new heritage that is already beginning to decay. (...). If the money could be channelled into those resources, into creating the habits and culture of maintenance, the problem would be much less serious." (Siza, 2002: 20).

Furthermore, the pressure for architectural heritage sites to become more energy-efficient has been gradually increasing over time, so that conservation should take into account contemporary approaches to environmental sustainability (ICOMOS ISCAH20, 2011: 4). Nevertheless, many pre-existing buildings have good passive design systems (good inertia in their supporting walls, good thermo-insulation, natural ventilation systems), and the existing technical devices have a good potential for reuse, often resulting in economic benefits and greater respect for patrimonial values. This is one of the most problematic

and threatening issues in the safeguarding of 20th century architecture (Tostões, 2011: 205), namely because of current building regulations and standards (e.g. accessibility, health and safety, fire safety, earthquakes, and energy efficiency) which should be more flexible, as they are often not adapted to the site's climatic conditions and thus become very demanding as far as the conservation of pre-existing buildings is concerned.

In Portugal, this problem has recently been minimized by a recent law which does away with the obligation for regulations governing buildings that are more than 30 years old (DL 53/2014 of 8 April); however, on the other hand, this document can be dangerous because of the facility that it provides for conducting transformation interventions.

An interesting case study of conservation of the 20th century architectural heritage is Alvaro Siza's recent intervention at the Casa de Serralves (used for temporary exhibitions), a detached house which is considered to be the most remarkable example of an Art Deco building in Portugal. This house was designed and constructed between 1925 and 1944, and it was listed in 1996 as a "Building of Public Interest".[11] This building is a mixed construction of stone walls, concrete slabs and a wooden roof structure covered by tiles, limestone plaster, steel frame windows, and interior floor coverings in marble and wood.

Siza proposed maximising the preservation of the existing building through a highly surgical conservation intervention with specific and highly accurate repairs.

In the case of the intervention made on the exterior plasters work, localized repairs in deteriorated areas were preferred to complete replacement. Research involved the analysis of pre-existing mortars with

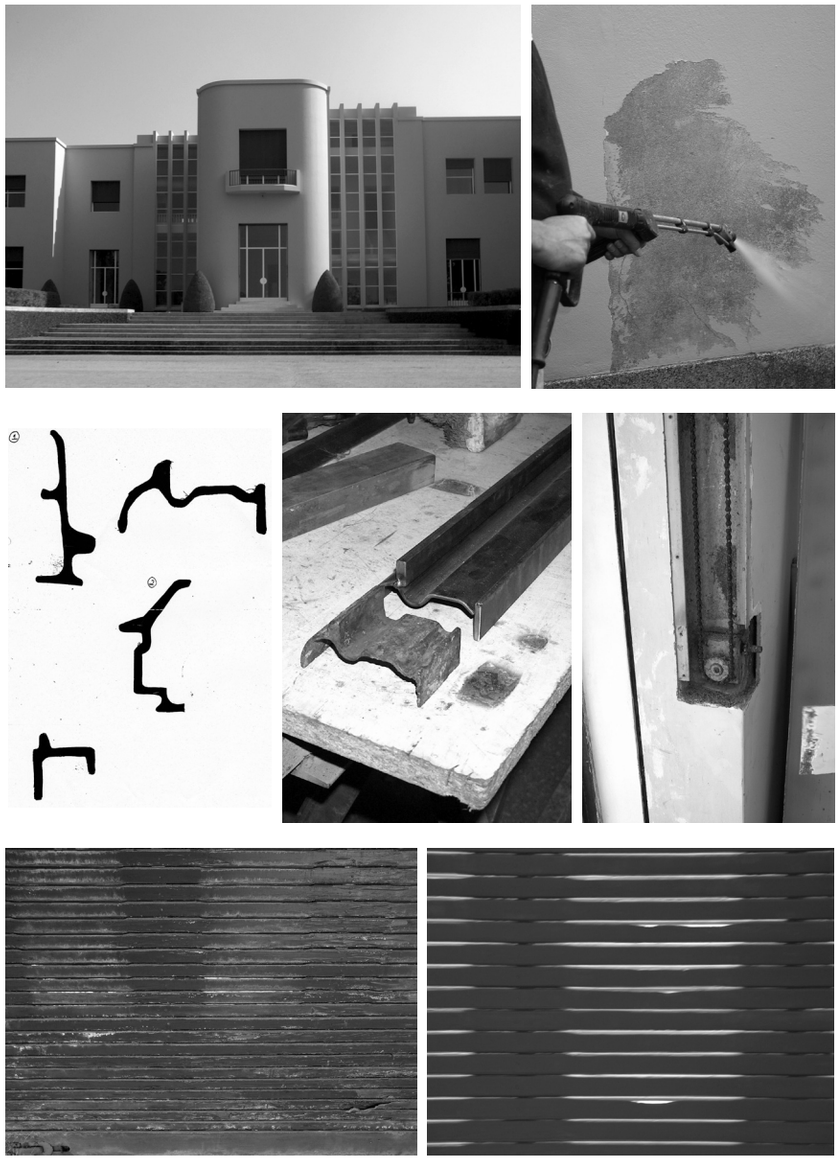

FIG.11 -17 Photographs of Alvaro Siza's intervention at the Casa de Serralves, 2003. On the top: General view and detail of the plasters' conservation; In the middle: Details of the windows' steel frame and the blinds' opening-closing mechanism; Bottom: wooden blinds before and after the intervention. Photos by Filipe Ferreira, A.O.F.

the aim of establishing the most compatible solutions for their repair.[12]

As far as the windows are concerned, extruded steel frames were conserved or replaced, where necessary, with a similar design, and the wooden blinds were conserved, as well as their opening and closing mechanisms. The interior plaster work was partly replaced, while the wooden and marble floors were treated and conserved

Regarding to technical devices the new electrical infrastructure made use of the previously existing circuits, old heating systems were preserved, and a new heating system was proposed, as well as new bathrooms for visitors.

Hence, despite the recent prolific debate on the preservation of 20th century architectural heritage, there are still many questions remaining open for discussion: the definition of authenticity (image, material or progressive?) (Jerome, 2011); the repair of different materials, technical devices, energy efficiency and sustainability, social mission and community engagement, among others. Hence the need for previous knowledge in a case-by-case approach, ensuring that the design is in keeping with the building's aura; all of these principles serve to remind us that "managing change is an essential part of the conservation process to maintain cultural significance, authenticity and integrity" (ICOMOS ISCAH20, 2011: 3).

Finally, the sharp decline in economic and ecological resources calls for a wider reflection on heritage preservation, which should converge not only on the restoration of iconic monuments from the past, but also on built heritage in the broad sense – most of which is from the 20th century – as a resource that is spread all across the territory.

Notes

1 Recently, there has been prolific debate on the documentation, safeguarding and conservation of 20th-century architectural heritage. Among other institutions, DOCOMOMO International, ICOMOS International Scientific Committee on 20th-Century Heritage (ISCAH20), The International Committee for the Conservation of the Industrial Heritage (TICCIH), UIA modern heritage – including the Modern Heritage Committee of the Association for modern Asian Architecture Network (mAAN) – and the Getty Conservation Institute (GCI) have promoted conferences, workshops, meetings and publications on these subjects. For further development of this subject, see Susan MACDONALD, "Modern Matters: Breaking the Barriers to Conserving Modern Heritage" in *Conservation Perspectives, The GCI Newsletter,* n. 28.1, 2013.

2 Very few monuments from the 20th century are listed as national monument (12 in the beginning of 2013). For further information see Ana TOSTÕES, "Património moderno : conservação e reutilização como um recurso", in *Revista Património*, n.º 1, Lisboa: DGPC, 2013.

3 Important researches on 20th century portuguese architecture are among others: Ana TOSTÕES, Annette BECKER; Wilfried WANG (coord.), *Arquitectura do Século XX - Portugal* (Catálogo da Exposição). Frankfurt /Lisboa, 1998; Ana TOSTÕES (coord.), *Arquitectura Moderna Portuguesa 1920-1970*, Lisboa: IPPAR, 2004; Ana TOSTÕES (coord.), *IAPXX - Inquérito à Arquitectura do Século XX em Portugal*, Lisboa: Ordem dos Arquitectos, 2006. For further information see Ana TOSTÕES, *Património moderno* : ...cit..

4 Seminars held about these subjects, among others: Docomomo Iberico thematic seminars - industrial (2005), housing (2009), public buindings (2010), education (2013); *Cuidar das casas 2: a conservação do Património do século XX*, ICOMOS/FAUP/FEUP, FAUP Porto, 8 February 2013; *EWV_Exchanging World Visions, Modern Architecture in Lusophone Africa (1943-1974), looking through Brazilian experience since the 1930s*, International Conference, Escola de Arquitectura da Universidade do Minho, 7-8 December 2012.

5 See *Carta do Património*, in *Planta de Ordenamento*, *Plano Director Municipal do Porto*. Source: http://goo.gl/w1ksuQ [accessed on 2 May 2014]

6 This map is based on the *Carta do Património*, as well as on the *Carta de Arte Pública* which relates to statues or sculptures placed on building facades or in the gardens, streets and squares of the city. See *Carta dos Bens Patrimoniais* at *http://sigweb.cm-porto.pt/MipWeb/* [accessed on 22 April 2014]. Information kindly provided by Domingas Vasconcelos.

7 Information kindly provided by Domingas Vasconcelos.

8 "Traditional conservation practitioners argued for the application of existing philosophical approaches, tempered by the particular requirements of the conservation challenges at hand, while others argued for a new philosophical approach specific to the demands of modern heritage. The question that generated the greatest debate was whether accepted conservation norms could be applied to places representing the modern age, specifically

with respect to material conservation. Could authentic fabric be conserved without compromising design intent, which had been driven by new social ideals?" Susan MACDONALD, *Modern Matters.* ...cit, p.6.

9 Interesting studies in this field include, among others: Carolina DI BIASE (a cura di) *Il degrado del calcestruzzo nell'architettura del Novecento*, Santarcangelo di Romagna: Maggioli, 2009; Francesca ALBANI, *Superfici di vetro negli anni Trenta. Storia e conservazione*, Santarcangelo di Romagna: Maggioli, 2012. For a broader and more specific bibliography, see: Susan MACDONALD, Gail OSTERGREN, *Conserving Twentieth-Century Built Heritage: a Bibliography.* Los Angeles: GCI, 2011.

10 The research includes the following decay manifestations: "trikling, biological growth, incrustation, warping, mineral deposit (dust), scaling, delamination, efflorescence, erosion, exfoliation, stalactite, stalagmite, staining, discoloration, spall, popout, cold-joint lines, honeycombs, air voids, non structural cracks and, finally, corrosion of reinforcing steel (rust spots, crack, delamination, spalling). See. Carolina DI BIASE and Francesca ALBANI, Alterazioni e degrado in Carolina DI BIASE (a cura di) *Il degrado del calcestruzzo...*cit.

11 The design of the villa may be attributed, with some caution, to the French architect Charles Siclis (1889-1944), and José Marques da Silva (1869-1947), who developed, modified and implemented the project. Carlos Alberto Cabral, Jacques Émile Ruhlmann, and subsequently Alfred Porteneuve also participated in the project, as did Jacques Greber (gardens). See *http://www.serralves.pt/pt/fundacao/a-casa-de-serralves/historia/* [accessed on 22 April 2014]. For further development of this subject, see André TAVARES, *Os fantasmas de Serralves*, Porto: Dafne Editora, 2007.

12 See Universidade do Minho – Laboratório de Engenharia Civil, *Caracterização dos rebocos exteriores da Casa de Serralves,* Proc. 241.03, 2003; Prof. Ing., Vasco Peixoto de Freitas, *Parecer sobre as soluções de revestimento de fachadas previstas na Casa de Serralves*, Relatório HT 2046.03, 2003. Information kindly provided by Filipe Ferreira, A. O. F..

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References

Maurizio BORIANI, "Restaurare il 'moderno'? Difficoltà tecniche e teoriche di un tema di attualità", in *Costruire in laterizio*, nº 60, 1997. Available at: http://costruire.laterizio.it/costruire/ [accessed on 21 April 2014]

Andrea CANZIANI (ed.), *Conserving Architecture: Planned Conservation of XX Century*, Milan: Electa, 2009.

Anton Capitel, *Metamorfosis de monumentos e teorias de la restauracion*, Madrid: Alianza, 2009, pp. 77-79.

Marco DEZZI BARDESCHI, "Adoratori d'immagini" in *Ananke*, 12, Firenze: Alinea, 1995, pp. 2-3.

Carolina DI BIASE (coord.), *Il degrado del calcestruzzo nell'architettura del Novecento*, Santarcangelo di Romagna: Maggioli, 2009.

ICOMOS ISCAH20, *Madrid Document for Twentieth-Century Architectural Heritage*, 2011. Available at: http://icomos-isc20c.org/id13.html [accessed on 21 April 2014]

Pamela JEROME, Interview in *Construção Magazine*, nº 44, Porto, 2011, pp. 4-9.

Susan MACDONALD, "Modern Matters: Breaking the Barriers to Conserving Modern Heritage" in *Conservation Perspectives, The GCI Newsletter,* n. 28.1, 2013, pp. 4-9. Available at: https://www.getty.edu/conservation/publications_resources/newsletters/28_1/index.html [accessed on 21 April 2014]

Alvaro SIZA, "Recuperação e Manutenção", in *A intervenção no património. Práticas de conservação e reabilitação.* Porto: FEUP, 2002, p. 20.

Alvaro SIZA, "Conferencia para el CAH20", in *Intervention Approaches in the 20th-Century Architectural Heritage*, International Conference CAH20th, Madrid, 2011, pp. 186-188.

André TAVARES, "Prize-winning ruins" in *http://domusweb.it*, 14.03.2012. Available at: http://www.domusweb.it/en/architecture/2012/03/14/prizewinning-ruins.html [accessed on 21 April 2014]

Ana TOSTÕES, "Modern and Sustainable: a resource", in *Intervention Approaches in the 20th Century Architectural Heritage*, International Conference CAH20th, Madrid, 2011, pp. 205.

Ana TOSTÕES, "Património moderno : conservação e reutilização como um recurso", in *Revista Património*, n.º 1, Lisboa: DGPC, 2013.