

States Pavilion in Ibirapuera Park

Maintenance Plan

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Abstract

This report for the course Conservation & Management of Historic Buildings is a *Conservation and Maintenance Plan for States Pavilion*, located in Ibirapuera Park, in São Paulo and projected by Oscar Niemeyer. This park history returns to the early 50's, when the city was to complete 400 years old. The celebrations of the IV Century of São Paulo City Foundation should happen in a modern place, using modern architectural concepts not only in the design of the buildings but in the complex as a whole. Since the end of the IV Century celebration, the park has been used as institutional and leisure functions and it's one of the most important parks in the city of São Paulo. The park and its buildings belong to the City, and States Pavilion has been recently transferred to the Culture Municipal General Office, with the intention to recover its good shape and its cultural function.



Figure 1: the States Pavilion, probably a few months after its inauguration

Introduction

Because of the deep interventions that have affected the States Pavilion along the time (also named as Armando de Arruda Pereira, in honour to the city major in 1953), in 2006, the Municipality started to work in its recovery. Now, an architecture office is developing a restoration project and it comprehends also the transformation of internal areas to place a new museum.

The States Pavilion is in good shape for use. The most important problems concern the deep transformations in some of its parts and the bad conservation. The several interventions in this building until this moment, have been held to adapt it to new functions, and to solve problems in a practical and temporarily way; so this building has never been restored.

Background

The Object: its history, location and surroundings

Location and surroundings

The Ibirapuera Park is located in a high social class place, in the south of the city of São Paulo. It is surrounded by beautiful residential neighbourhoods as Jardim Paulista, Itaim Bibi and Moema. Jardim Paulista is one of the urban arrangements undertaken by the English City Company in several parts of São Paulo. The aim of this Company was to transform fallow areas in urban boroughs, using the features present in the field, as it was held in the *garden cities* in England, mainly developed by Barry Parker. Neighborhoods as Jardim Paulista and parks like Ibirapuera represent important places to “breathe out”, located very close to the high buildings that were hardly disseminated in this great modern city.



Figure 2: view of Jardim Paulista, very close to high building districts. The Ibirapuera Park is in the background.



Figure 3: view of Ibirapuera Park- traffic roads around it and the lake in its center.

The situation of the building

In the picture below, we can see the location of States Pavilion, connected to the other main buildings in this park by a long slab roofing. The other four buildings are: Nations Pavilion (today's Afro Museum); Bienal Pavilion; Oca Museum and Ibirapuera Auditorium (inaugurated in 2005 - in this picture, it was not still built)



Figure 4: the complex of buildings in Ibirapuera Park.

The history of Ibirapuera Park

The Ibirapuera Park in São Paulo has been a fallow area until 1916, when it became city property. Many projects have been presented to the Municipality, along different administrations, to transform this large area, a land alongside a watercourse, known as “Várzea do Ibirapuera”, into a public park.

The idea of the public park

In 1918, an urban arrangement of lots was approved, called Jardim Lusitânia, under the administration of the mayor Washinton Luís.¹ This idea followed what the English City Company was undertaking in areas along the river Pinheiros, in São Paulo. Focused in the transformation of fallow areas in urban residential arrangements to the high class, the City Company started with Jardim America, close to the river Pinheiros.

In 1926, for the first time, the Ibirapuera had been proposed to be a big public park that would increase the value of the district. This park should have the same size as Hyde Park in London and half of Paris Bois de Boulogne area.

Several projects were accomplished, by different authors, as in 1932, when Reynaldo Dierberger, a landscape planner of German origin presented some sports and recreation buildings in a monumental garden, with rinks, tennis, lakes and a place for the exposition of plants. This plan didn't consider the watercourse drain studies already made by the city and so the Technical Section of Public Interventions presented a revised version of the original plan.

The Manequinho Lopes nursery

In 1934, during the administration of mayor Fábio Prado, Manequinho Lopes (Manoel Lopes de Oliveira), a Brazilian agronomist and director of the Department of Parks and Gardens, requested the transference of an existent nursery to there, with national and international plants, that needed a larger place to survive, because of the development of the city and its high requirement of plants to be placed in squares and avenues. This nursery required greenhouses for plants, flower beds, irrigation system and all the equipments to raise the plants for 8 or 10 years before its use in public spaces.²

¹ Washington Luís was the city mayor of São Paulo from 1914 to 1919. He became the president of the country from 1923 to 1930.

² The area of Ibirapuera was also requested to place an existing racecourse, situated in Mooca, a central district. But in 1933, after several purposes to use this area, Jóquei Clube, the racecourse owner, received a donation of the English City Company, to place the racecourse in a big place adjacent to the river Pinheiros, in Cidade Jardim district.

The IV Century São Paulo Foundation Commission

In 1951, July 20th, the state governor and the mayor Armando de Arruda Pereira³ created the IV Century of São Paulo Foundation Commission, to organize all activities and works in a foundation celebration. Happenings should explain the modern city's development, showing present actions connected to selected past elements. The concept of modernity should be disengaged from archaic ideas.

Francisco Matarazzo Sobrinho, known as Ciccillo Matarazzo, an important industrial entrepreneur, cultural and art protector, chose the Ibirapuera area to locate the IV Century's celebration; in 1952 March 24th, he sent a request for the construction of the park to the city mayor, as the place to that celebration. It was supposed to be a symbol of São Paulo industrial development and a public place for leisure, art and cultural activities.

Christiano Stockler das Neves had been invited by the city to study the area. After his analysis, he made a plan for the park, with monumental buildings in "art deco" style and great boulevards.

Against Stocker das Neves plan, Ciccillo Matarazzo proposed a Planning Team to study the park project and received all public support to do it. So this planning team proposed a project with total innovation: a new modern urban and architectural way of planning was introduced. The team was composed by modern architects under the coordination of the architect Rino Levi.

The studies started with a Director Plan to control city growth. Traffic was an important question to be worked out. The importance and complexity of this project influenced the decision to transform the Park Plan Commission into an autarchy.

Because of administration problems the current team fell apart as early as January 1951, and only the general plan was completed. This fact made Ciccillo Matarazzo invite the architect Oscar Niemeyer to idealize the project, in continuity with the modern concept supported by his ideas.

The Oscar Niemeyer team

The Oscar Niemeyer team, composed of Zenon Lotufo, Eduardo Kneese de Mello and Helio Cavalcanti (with the collaboration of Gauss Estelita and Carlos Lemos), started its studies in 1952. Other important professionals participated to project other buildings and the park urbanization, the landscape plan and the Planetarium. Burle Marx was invited to collaborate: he presented a not accomplished plan in 1953.

³ The baptism name of States Pavilion - Armando de Arruda Pereira Pavilion – is in honour to this City mayor.

Oscar Niemeyer and the modern architecture

At this time, in the early 50's, Oscar Niemeyer was already recognized as architect in an international level. He had begun his career as Lucio Costa's student trainee, when this architect shared his office with Gregori Warchavchik, both important architects that introduced modern architecture in Brazil. Since his first works, we can see that Niemeyer was hardly influenced by Le Corbusier, with whom he had worked in a few important projects ⁴. He started to use corbusean solutions with the highest possibilities of the *reinforced concrete*.⁵

The Niemeyer's team purpose to the park

The first idea of Niemeyer's team was a composition of big buildings connected by a concrete slab roofing surrounded by the lake and the diversion areas. The buildings located in the extremities of the slab roofing were: Industry Pavilion, Nations Pavilion, Restaurant and State Pavilion. In the last border of the slab roofing an esplanade should connect two big buildings: the Auditorium and the Planetarium. The Agriculture Pavilion was located on the other side of the adjacent Brasil Avenue.



Figure 5: The first 1952 Niemeyer project. Figure 6:...and the definitive project, with the more simplified slab roofing design.

This project was not approved because of its high cost. So in January 1953, the final project was concluded: the slab roofing was reformulated with a lighter form. The number of vertices was reduced to four, suppressing the restaurant over the lake. Other elements were suppressed because of economic reasons, such as the monumental entrance and the Auditorium. The remained buildings were: Agriculture Pavilion (today's DETRAN building); Industry Pavilion (Bienal Pavilion); Nations Pavilion (Manuel da Nóbrega Pavilion);

⁴ In the buildings projected by Niemeyer and Le Corbusier, as in the Ministry of Education in Rio de Janeiro (1936-45) and ONU headquarters in New York (1947), he used corbusean solutions, suggesting new ways to employ his concepts and materials. So this was the moment when his target to use the corbusean solutions to the highest possibilities of *reinforced concrete* was born.

⁵ Barone, Ana Cláudia C.

2007 *Ibirapuera: parque metropolitano (1926-1954)*. Doctor Thesis, FAUUSP, São Paulo, page 97

States Pavilion (Arruda Pereira Pavilion) and Expositions Pavilion (Oca building).

The park was inaugurated in 1954 August 21th, as an important modern space of culture, sports and entertainment.

The buildings architectural concept

All the buildings were designed in reinforced concrete structure.

The pavilions were designed as regular prisms supported by *pilotis*, *free plants* and glass façade protected by brise-soleil.

In the entrance of the park, the buildings Auditorium and Pavilion should be constructed in pure geometric shape: The Pavilion (today OCA building) is a half sphere dug in soil, and the Auditorium, an inverted triangular prism, that was not built. (It has finally been built five decades later, in 2005)



Figures 7 and 8: The Nation Pavilion (today's Afro Museum) and States Pavilion, in 2006



Figure 9: view of States Pavilion, from the main façade, the one that connects to the slab roofing, and that is protected by concrete brise-soleil.



Figure 10: view of the Ibirapuera park, in construction. The Nations Pavilion (today's Afro Museum), is in the center of the picture and the States Pavilion is in the left. Notice that the open area was used by a children leisure park, before its transformation in a green area.



Figure 11: view of Nations Pavilion, when the park was already accomplished.

Armando de Arruda Pereira Pavilion (original States Pavilion) - The history of the building (how it was built and how it has changed until now)

In straight similarity one to the other, both States Pavilion and Nations Pavilion were projected with partly underground floor, to reduce their height. They have the same dimensions (height, width and depth), only differing in some details, as the *brise-soleils*, only present in States Pavilion: in concrete and in aluminium, they were designed to protect the building from the exposure to the sun. The States Pavilion is in north-south position, so the two façades (east-west) should be always affected by the sun's ray.

The States Pavilion placed several Brazilian states exposition in the IV Century celebration, in 1954. Both buildings were the venue of the II (1953) and III (1955) São Paulo Art Bienal.

After the IV Century celebrations, in 1956, the pavilions, without a defined destination, were occupied by the city mayor cabinet .

In 1976, the PRODAM - Communication, Information and Technology Enterprise – created in 1971 to provide services to the City, was installed in States Pavilion, until 2006.

The park cultural function recovery

In 1985, it was a public agreement that the buildings official city functions should give place by cultural activities. Then, in this year, the law nr. 9.872, of January 18th , prohibited all public administration functions in the park.

This idea took a long time to be held. In 1992, the park was nominated by the State as cultural heritage, and in 1996, a Director Plan was presented by Oscar Niemeyer, ordered by the mayor.

The PRODAM enterprise left the Armando Arruda Pavilion only in 2006.⁶ During the time it was installed there, several interventions were held, such as: independent refrigeration systems that left the original shafts system depreciated along the time; new drainage system to the roof, with external pipes that affected the concrete brise-soleil in many parts; new bathrooms with walls located very close to the window frames, etc.

Although the interventions that changed its original design, the building has been left in good shape for use, so it was used, in October 2006, to place the “Paralela 2006”, a part of the Art Bienal Exposition. The building has some conservation problems, such as concrete cracks, degeneration of the window frames, water infiltration in the underground floor, etc. In the same year, the Cultural Municipal General Office became responsible for its use and the Department of Historic Heritage – DPH-became responsible for its maintenance.

The new cultural function in States Pavilion

In 2006, the city hall started to transform the building in a “popular cultural museum”.

An enterprise called Instituto Sangari obtained the permission to use the building to make some expositions. The idea of the Municipality to give this concession was to start the cultural activities, even in a temporally way, not to leave the building empty, while its definitive destination was not yet decided.

Some emergencial interventions were done to this inauguration, such as: removal of the wood structure that was covering the underground

⁶ The city mayor cabinet left the Nations Pavilion years before, and the Afro Museum was inaugurated in 2004, following the idea of recovery of cultural functions in the Ibirapuera Park.

floor; recovery of the ramps handrails as the original design, inspection in the roofing; removal of walls and bathrooms built in disagreement to the original; replacement of broken glasses. One of the items proposed by this office were to paint the concrete pillars in white, but DPH didn't approve it.

After these services were carried out, this exposition and other ones were accomplished there, by the coordination of the same Sangari Institut.

The 2008 project to restore the building and to place the Brazilian Cultures Museum
In 2008, the building was still in need of repairs and of a decisive function, and so a deep intervention should take place, to give definitive solutions to its problems and to restore the building, with its original features. So the Municipality hired an architecture office – Pedro Mendes da Rocha associated architects. The project is being developed; an outline project has been already presented to DPH. It consists in a large architecture intervention to transform it in a “Brazilian Cultures Pavilion”. Some of the interventions will be described in the item Proposal / Repairs.

The Object as such; the construction system, size, materials, status

(See the pictures in the Appendix)

The building is a construction with reinforced concrete structure and masonry walls. The structure is composed by concrete pillars and *ribbed slab*⁷. The pillars are located in a modular grid of (10X10)m² and they have cylindrical shape, with 50 centimetres diameter section. This structural system in grid has the intention to permit any arrangements on the floors.

The two main façades are in glass, with iron frame: the façade that connects to the long slab-roofing (east) has a concrete brise-soleil along it, with a design in shape similar to a “grill” that produces an interesting composition in this view. The opposite façade (west) had originally an aluminium brise-soleil, that was removed, probably by PRODAM.

The smaller façades are in masonry walls covered with white *glass mosaic*.

All the structure elements are painted, except for the ground *handhold-pillars*, in “V” shape, that remain in concrete, covered with a not original surface coating.

The sequence of *handhold-pillars* is a creative structural solution present in a few Niemeyer's projects.⁸ Those pillars are designed to

⁷ The higher floor slab in this building was constructed using a modern system where ceiling and floor are in concrete and take part of the same slab: first, ceiling is set and second, the “ribs” and the floor are cured together. The wood forms stay into the slab (they are not removed) – see the slab section in Figure 12.

⁸ The use of structural forms in “V” shape is present in some Niemeyer's buildings, such as the Hotel Tijuco Preto and Public School, both in Diamantina, Minas Gerais (built in the early 50's), and they

support the extremities of the main body, as a handhold structure (see Figure 12).

The dimensions of the type floor are 150X42 metres. The building has 12 800 meters square, in three floors, one of them partly underground. As in Nations Pavilion, this partly underground floor reduces its height in relation to the access ground. The roof is composed by *cement fiber* tiles with wood structure supported by the top *ribbed slab*.

In the main floor, Niemeyer's intention was to design a free floor, with no interferences, so all the technical functions as bathrooms and crown, were located in the extremity of the long plan.

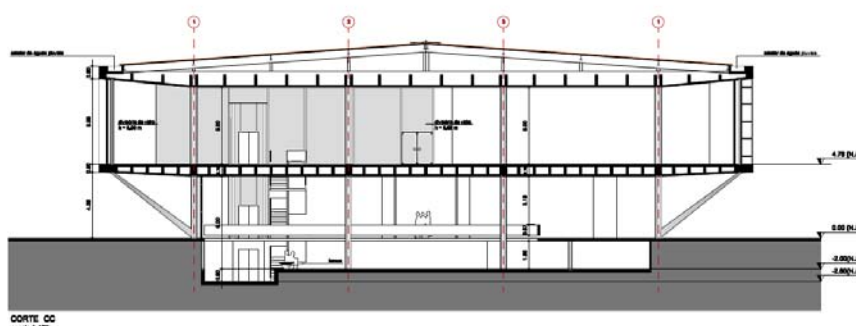


Figure 12: section of the 2008Architecture Project; see the handhold-pillars in "V" shape in the extremities.

Analysis

Since PRODAM has been installed in this building, in 1976, its administrative function has restricted its use to a few people – officials and workers – as it was not opened for public.

The recovery of the cultural function will not only make it possible to be profited by everyone, but also will be a very important action to bring back its good use. The fact that its conservation and maintenance has been transferred to DPH will assure that the next interventions will be carried out following its original features. All the buildings in Ibirapuera Park have recovered the cultural function. The importance of this park and its privileged location brought to the City Hall much efforts to increase its attractive use. The last important intervention there was in 2005, with the construction of the Auditorium (next to OCA Museum), the only building that was not

have influenced the architect Afonso Eduardo Reidy, in the project of the Modern Art Museum – MAM - built in 1952, in Rio de Janeiro.

still built since the last Niemeyer plan to the park was completed, in 1953.

Other interventions to increase the cultural activities in Ibirapuera Park are in progress, as in the Agriculture Pavilion, that has been occupied by DETRAN – São Paulo Traffic State Department – for many decades. Now it will be occupied by the Contemporary Art Museum headquarters.

New cultural function and good maintenance and conservation will recover States Pavilion and the other buildings in Ibirapuera Park, as it is necessary, emphasizing its cultural and historical importance.

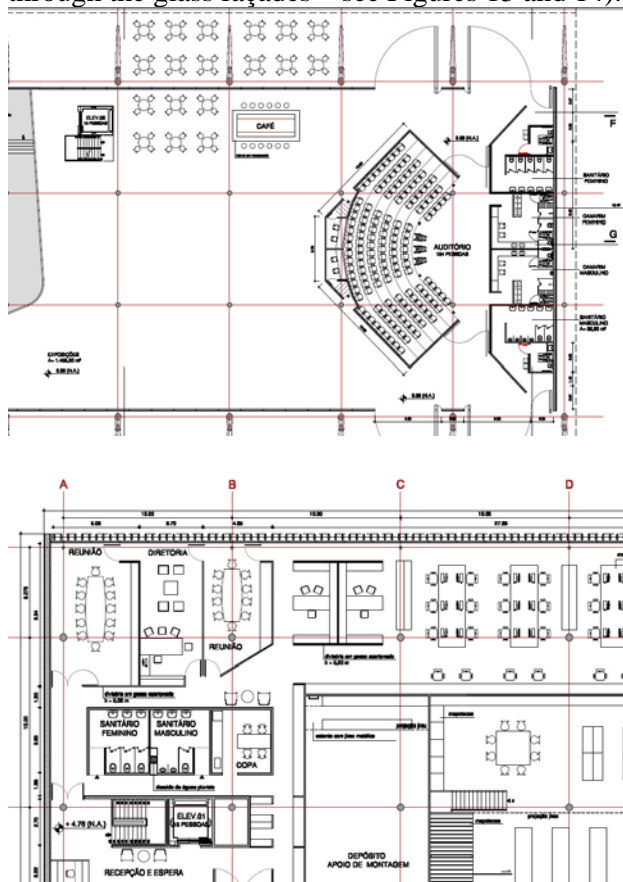
Proposal

Repairs

The major part of this list takes part of the list of services presented by Pedro Mendes da Rocha Associated Architects, the office hired by the City in 2008, to do the *Architecture Project*, and Maria Luiza Dutra & Associated, the office responsible for the *Restoration Plan*, hired by the architecture office. This proposal is been developed, so the follow items may have some future changes.

- New roofing drainage system, to remove the drainage pipes located in the façade. The new drainage system consists in the installation of new pipes located into the building (according to the 2008 Architecture Project, the restoration of the original pipes, located into the pillars, is almost impossible to carry out, and the experience in this building and in Nations Pavilion has showed that it causes hard maintenance problem (the pipes are often blocked, because of their small diameter). So the new drainage system requires the construction of a new roofing on the upper slab (with metallic tiles and iron structure replacing the existing *cement fiber* tiles) that will collect the water and lead it to new pipes. There will be installed four concentrated pipes, with large dimensions (about 35 centimetres of diameter); so the roofing is being projected with new design. All the elements (gutters, pipes, new metallic tiles-with termic isolation, etc) will be calculated to make flow the right volume of water (the right position of the new pipes is not defined because it depends on the lay-out of the first floor, that is still being defined).
- Demolition of the annex, situated in the north extremity and restoration of the original north façade.
- Removal of bathrooms and other constructions close to the glass façade
- New arrangement of floors with light walls (*Alcoplac - Neocom System*) and *silicon-calcareous blocks* walls (*Prensil*) in the support rooms as bathrooms and and stairs blocks. The new Museum

requires a lot of new functions, such as administration and technical rooms, collection deposit, library, and auditorium and the new activities will increase the population that will frequent it, so the support elements, as bathrooms and elevators (including the accessibility) also must increase. All these compartments are being designed and approved by DPH. (the new walls are located in accordance to the frame modulation, not to damage the view through the glass façades – see Figures 13 and 14).



Figures 13 and 14: 2008 Architecture Project ground floor and first floor details

- Replacement of glass mosaic – the external walls must be washed with water jet and detergent, to remove all dust and dirtiness. After that, if possible, replace the pieces of glass mosaic only in the lacking parts, trying to maintain the ones in good shape
- Restoration of window frames in the two façades, following the Restoration Plan.
- Restoration of the brise-soleil. According to the Architecture Plan, the original brise-soleil, is still being produced by Hunter Douglas (type *Termobrise 335mm*). It consists in moving aluminium panels with sound/thermal proofing - composed by poliuretano inside the panels.
- Restoration of *handhold-pillars*: removal off all elements fixed on the *handhold-pillars*, with attention not to damage them; removal of the surface coating, first with water jet, second with sandpaper and,

if necessary, sand jet. Afterwards, removal of the existing repairs in the concrete, keeping samples of mortar to be studied. Then, restoration with mortar composed by Portland cement, fine sand and synthetic adhesive solution (Sika Fix or similar). White cement can be used to adjust the color closer to the original concrete tone – see other instructions in the Restoration Plan.

- Restoration of cracks in pillars, walls, floors, etc, after removal of covering. Specially in pillars and slabs, the cracks must be monitored by the DPH structure engineer, to verify if they are already stable. If not, the structural reason must be studied and corrected before the covering and painting.
- Restoration of the first floor slab: after the removal of the existing vinyl floor, inspection in the concrete to identify its status and its original floor; after that, restore all cracks, holes and other defects – specially after the removal of the drainage pipes – installed in the concrete brise-soleils and inside the building, passing through the slab, next to the frames.
- Drainage in the underground floor must be studied to solve the existent water infiltration. After that, remove the concrete floor and install a water repel system, that will be defined in the Restoration Plan, and finally rebuild the concrete floor with the same composition and feature. All the walls on this floor must receive drying system.
- Removal of the existing lighting system (a new one will be installed and may be the “Solatube”⁹ system, wich consists in collecting and reflecting the solar ray with mirrors. It allows no energy spent and doesn’t need maintenance, because all the system is sealed and it’s appropriate to museums illumination, because the light is filtered and calculated to be diffused in the space and not to damage exposition objects (this specification depends on the Municipality approval, because it is too much expensive).
- The Architecture Project includes the design of accessibility for all internal rooms and external square
- New technical installations, as electrical, hydraulic, phone system, lightning protection, fire fighting equipment, air conditioning.
- Manual for cleaning routine: DPH will prepare a Cleaning and Conservation Manual that will be used by the company responsible for the cleaning service. DPH will also hire a maintenance company, or include this building in the existing contract of maintenance of the historic houses under its responsibility.¹⁰

⁹ http://www.solatube.com/es/faq_general.htm

¹⁰ Sanches, Mauro

2007 *Ressaca Farmhouse Maintenance Program & Plan for Lund University*, DPH, São Paulo

Instructions for maintenance

Roof

- Roof must *fortnightly* have inspections, specially after storms, to verify problems in drainage system and in the status of the tiles and its fixation system. Dust, leaves, mud, and all kinds of objects must be removed and gutters, ruffs, and pipes must be cleaned. In the rain stations, the roof inspection must be intensified. The protection waterproof blanket must be carefully inspected, to guarantee its good fixation.
- The roof iron structure must be checked *every semester*; distorted pieces must be recovered, loose ones must be fixed, degraded pieces must be restored or replaced, etc. *Every semester*, all the pieces must be covered by protecting solution – against rust, or with synthetic enamel paint

Walls

- Dust on all internal walls must be removed *daily* with duster or with dry cloth.
- After expositions, applied objects on the exposition walls must be removed, and the company responsible for the exposition must give the place back in its original conditions and feature – the expositors must be informed about the necessary care.
- All the masonry walls must be painted *monthly* with acrylic latex paint. The color will be defined after prospection.
- The walls covered by ceramic, porcelain tiles or glass mosaic will be cleaned *daily* with damp cloth with detergent.
- The external walls in glass mosaic must be washed *every semester* with light pressure water jet, following the manufacturer instructions.

Floors

The internal floors must be swept *daily*.

- Exposition floor: it might be in cement, sanded and polished. There will not be used any chemical or abrasive products, just sweeping and cleaning with damp cloth. It can be polished with vax, but it may not be recommended to an exposition floor, once it may receive adhesives to stick materials.
The floor cleanliness must be carefully described in the Cleaning and Conservation Manual. In the expositions, all attached materials on the floors must be fixed by removable adhesives, to let the floor in its original feature – the expositors must be informed about all the necessary care.
- Floors painted with epoxy (in bathrooms, crown, etc) will be cleaned *daily* with damp cloth; if a deeply cleaning is necessary,

the cleaning and conservation manual will define the instructions following the manufacturer.¹¹

Baseboard

- According to the Architecture Project, all baseboards will be in galvanized steel, painted in epoxy. But we recommend that it should be painted in enamel, because it requires a more simple and cheap procedure to paint and to maintain.
- Internal pillars: A baseboard can be installed, as it is described in the Original Project¹² and not carried out. The painting will depend on its type and material.

Ramps

- All the floors are served with ramps access. These ramps were originally designed with partial shut handrails in masonry with iron structure. They are in good shape except for a crack, that must be restored (see Restoration Plan).
- The handrails must be painted *every two years* with synthetic enamel paint, and the color will be defined after prospection.
- The existing ramps are covered with rubber pieces floor (by *Plurigoma* manufacturer) that will be removed and probably replaced with linoleum pieces – *Forbo* manufacturer – in this case, it must be cleaned *daily*, following the manufacturer instructions¹³. This floor must be skidding proof.



Figure 15: internal ramps with the existing rubber floor (*Plurigoma*) and masonry handrails with iron structure.

¹¹ According to the Architecture Project, the epoxy coating will be Sikafloor 100 LA with 2 centimetres of thickness

¹² The Original Project of States Pavilion is mentioned in Dutra, Maria Luiza & Associates 2009 *Brazilian Cultures Pavilion Complementary Restoration Memory for DPH-SMC, São Paulo*.

According to this document, a rubber baseboard in internal pillars, not accomplished, is mentioned.

¹³ <http://www.aecweb.com.br/forbo/especificacao/especificacao-produtos-fabricantes/detalhes/8446/0/1>

ceiling

- Concrete ceiling in exposition floor: before the painting, all elements and lighting system must be removed. After that, sand the surface and regularize it to start painting, following the instructions in the Restoration Plan. The ceilings must be painted with acrylic latex paint *every semester*.
- In the bathrooms, crown and cloakroom, all ceilings will be in gypsum panels. They must be painted *every semester*, with white synthetic enamel paint, following the Architecture Project.

Auditorium

- The auditorium will be swept *daily*, and the cloth elements as chairs and carpet will be cleaned with vacuum cleaner.
- the auditorium ceiling, acoustic glass wool panels (*Prisma Isover*) will be fixed. It must be maintained following the manufacturer instructions.
- the acoustic wall, covered with glass wool pieces, will be maintained following the manufacturer instructions.¹⁴
- auditorium stalls: structured in iron pieces, it must be inspected *every semester* to monitor broken pieces, rust, water infiltration. *Every semester*, all the pieces must be covered by protecting solution – against rust, or synthetic enamel paint. The linoleum coating must be cleaned *daily*, following the manufacturer instructions – see item *Ramps*.

Frames

After restoration, the iron frames in the façades must be painted *every two years*, and before the painting, all the layers above must be removed. It must be painted with synthetic enamel paint and the color will be indicated after prospection.

Twice a week, the frames must be cleaned with damp cloth; the glasses must be cleaned with cloth with alcohol.

Doors and windows must be inspected *once a month* to verify problems in opening, closing or locking. When replaced, the pieces must have the same features of the original ones.

Wooden doors

Located in the office rooms, reception, bathrooms and cloakrooms, wooden doors must be cleaned *daily* with dry cloth or duster. *Every semester*, they must be painted with enamel paint, following the Architecture Project.

Steel doors

To paint steel doors the maintenance company must check the Architecture Project, because some of them are painted with special

¹⁴ According to the Architecture Project, the acoustic pieces are type Sonare, manufactured by Isover - <http://www.isover.com.br/sonare1.htm>

technique - epoxy resin fire painting, for example, and cannot be painted in a simple way.

Iron pieces

- Iron handrails: After restoration or new installation, they must be painted *every too years*, with synthetic enamel paint, and the color will be defined after prospection. The metal doors (not defined) will be protected and cleaned following the Restoration Plan.
- The metal plate stairs will be painted by the manufacturer with poliuretano paint. Its maintenance must follow the manufacturer instructions.

Brise-soleil in aluminium

The brise-soleil in aluminium must be cleaned with soft cloth with neutral detergent, *three times a month*. The good working of this system depends on the right cleaning instruction (see manufacturer site)¹⁵ and it consists in an expensive solution; thus, we suggest to remain the building without this intervention, because this brise-soleil should be located in the south-west façade of the building, so the low sun's ray might be protected by the trees around the building.

Concrete brise-soleil

After restoration, the concrete brise-soleil, must be painted *every semester* with (not defined) paint and color following the Restoration Plan

Drainage system and water infiltration

Walls and underground floor must be monitored *every semester* to verify eventual water infiltration.

Damp rooms, like bathrooms and crown must also be monitored. Any problem must be reported to DPH.

Illumination

Even if the "Solatube" system will be installed, it will be adapted to electrical bulbs, that will be activated at night (as it is predicted by the manufacturer). So the broken bulbs in internal and external parts must be replaced by the same as the existent (following the Architecture Project).

Air conditioning system

DPH must hire the authorized company (the air conditioning system is not yet defined) that will conduct the conservation procedures in this system in an appropriate frequency

Electrical and hydraulic system

Any electrical problem or hydraulic problem that will result in physical intervention, must be immediately reported to DPH and its repair will be under the responsibility of the maintenance company.

¹⁵ http://www.hunterdouglas.com.br/html_sp/pdf/brise_termobrise_150_335.pdf

All the new pieces and repairs must preserve the original elements of the building

Phone system, lightning protection, fire fighting equipment and elevators system

The authorized companies will execute all repairs and give instructions or indicate companies to the conservation procedures.

Library security system

There will be installed a system against books steal in the library. The authorized company will make necessary repairs and give conservation instructions to be followed by the maintenance company.

Method

After the conclusion of the Architecture Project and its included Restoration Plan, the item *Repairs* of this paper must be completed, in accordance with DPH technical team. Then, DPH must proceed to the contract of a company to do all those services – new constructions and restoration. DPH must also contract a cleaning company (warning in the contract about the big dimensions of the building and that all the cleaning procedures must follow the instructions present in the DPH Cleaning and Conservation Manual) and a maintenance company, or include this building in the existing maintenance contract, paying attention to the big dimensions and high number of maintenance services that this building covers – this contract must mention the *Instructions for Maintenance* present in this paper, completed, with the accordance of DPH. After the new Pavilion inauguration, both maintenance company and cleaning company will start their routines, following all the instructions mentioned here.

As it is already current in DPH historic buildings maintenance, the maintenance company must work with a fixed-by-the-contract number and types of workmen and machines and DPH will provide money for the purchase of products and materials. The maintenance company will follow the schedule described in this paper, in accordance to DPH technical team.

Results/Current Status of the Work

The Architecture Project and Restoration Plan are not finished and approved at all, but the Municipality of São Paulo is hardly interested in the inauguration of the *Brazilian Cultures Pavilion*. So all this process must be finished soon and the restoration process too.

The routine of historical buildings maintenance is in course in DPH since July 2008, so in a few months it will be time to evaluate the efficiency and current troubles in this system. So the States Pavilion

maintenance should take advantage of this knowledge, acquired by the experience.

Discussion & Conclusions

The DPH historic buildings maintenance routine is already using the knowledge acquired by its technical team in this Conservation and Management of Historic Buildings course¹⁶. Until this time, DPH was responsible for 14 historic buildings, and in Technical Section of Projects, Restoration and Conservation (STPRC-DPH), each architect is responsible for one or two from them. The States Pavilion will be the 15th historic building to be under STPRC responsibility. This paper will collaborate to the knowledge necessary to develop this maintenance routine, focusing in States Pavilion, and warning about its complexity, its main troubles and characteristics and its importance as a cultural and historic heritage to this city.

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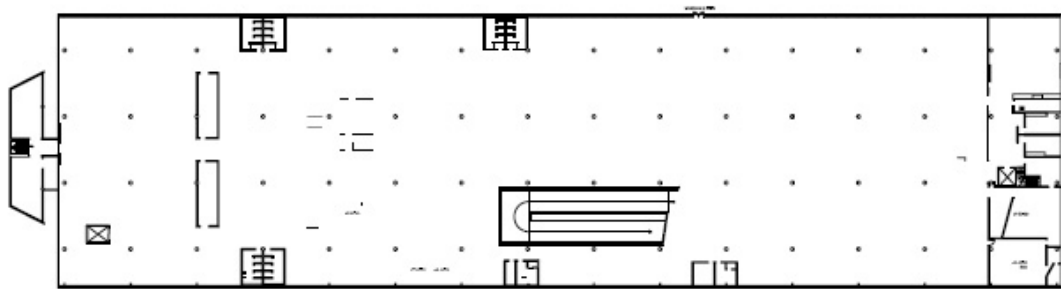
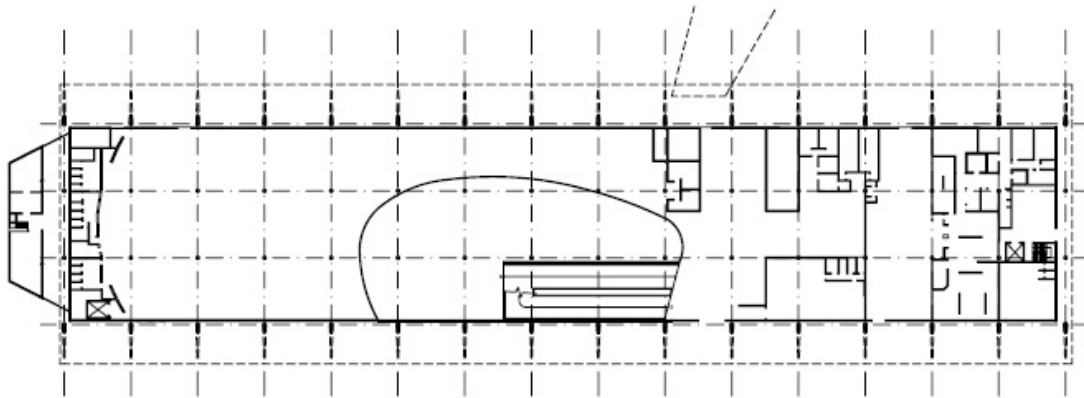
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Appendix



Figures 1 and 2: The ground floor and the first floor in 2006. The original Niemeyer 1953 plan had free floors, with all bathrooms, support and technical functions located in the extremity of the long plan. All internal rooms and the annex, located in the north extremity (left side in this picture) are not original.





Figures 4,5,6 and 7: situation of States Pavilion in 2007

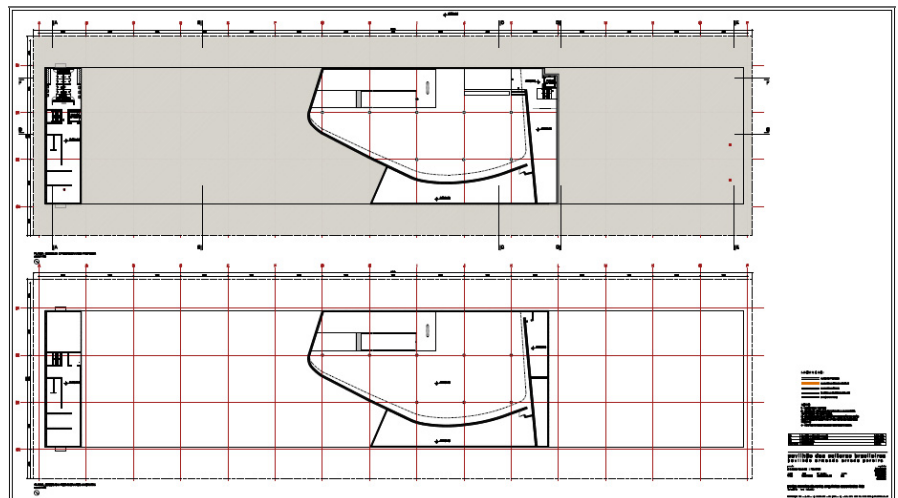
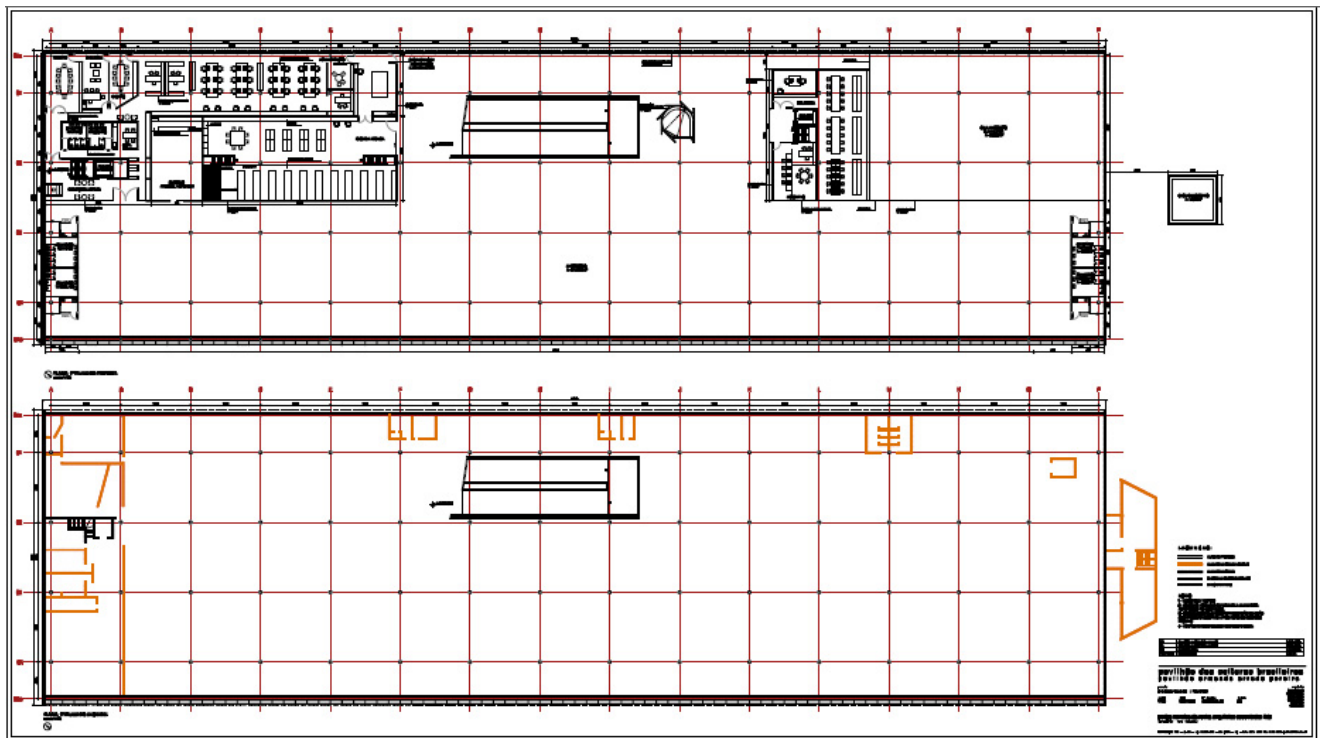
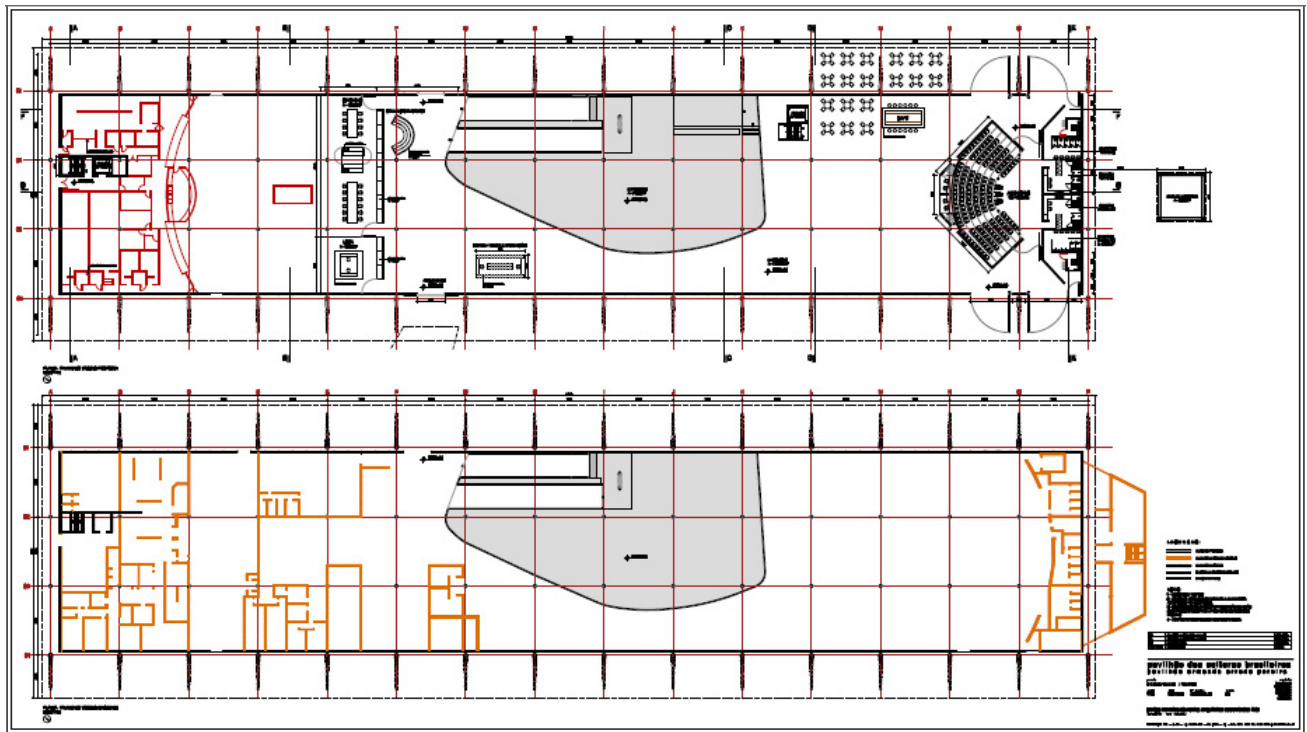


Figure 8: The 2008 Architecture Plan, that is still being developed. This is the underground floor, after (up) and before (down) the intervention.



Figures 9 and 10: The 2008 Architecture Plan ground floor and first floor, after (up) and before (down) the intervention.