World Heritage Site Maintenance: Brazil National Congress, Brasilia

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***Abstract*—Two entities for rehabilitation e refurbishment, Infrastructure Secretariat (SINFRA) of Federal Senate, under the Commission of Directors and the Technical Department (DETEC), overseen by the Board of Directors of the House of Representatives. The existing condition: one building with two different bodies, with similar goals; an ideal architectural condition, in its class. The Entities have identical tasks for different areas, and assume diverse technical positions to achieve their objectives. Although with similar management frame, financial resources, organizational and coordination structures, divergent options are taken when necessities are verified, in common and shared areas: as to evaluation and methodology, when establishing priorities, in particular; tasks and works preparation, correct technical supervision, proper rehabilitation/retrofit in construction condition and building modernization, in general. Nowadays, the entities, SINFRA and DEMAP, directly related to the building maintenance and refurbishment, which dictate the desirable technical condition, failed. The Institutions diverge on strategy, coordination policies and work definition, specially, in common areas (external and internal — shared). The actions taken to fulfill the contemporaneity requirements, by Brazil's Government Representatives, through procedures manuals, produced separately, by DETEC and SINFRA, have a direct impact on the architecture. Indoors spaces have a distinct treatment, when it comes to established goals: approaches that corrupt the original floor plan. In the exterior, some interventions changed, although slightly, the perception of the original composition.**

***Index Terms*—Brasilia, building, construction, construction procedures and coordination, materials' performance, Oscar Niemeyer, Palace do National Congress, refurbishment and rehabilitation, preservation and maintenance**

I. Introduction

The analysis of the efficiency, of maintenance policies and practices, derives from the impetus for the internationalization of the knowledge acquired in Portugal. Brazil was the natural choice, for it has the same language and constructive origins (although, today, there is an approximation to North American models). Added to that is the whole genetic and philosophical spectrum that interconnects the two nations.

The team, still in Lisbon, based on Center for Research in Architecture, Urbanism and Design (CIAUD) of Faculty of Architecture (FA) from University of Lisbon (ULisboa) initiated contacts, to prepare the collection of information with: the Portuguese Embassy in Brasil; Faculty of Architecture and Urbanism from University of Brasilia (FAUNB), and Institute of National Historical and Artistic Heritage, Federal District (IPHAN, DF). Which promotes preservation and defines maintenance guidelines, monitors construction conditions and oversees the construction interventions, during worksite development. Accordingly with the policies defined by Brazil's Government taking into account the UNESCO directives (in Brasilia there are 112.25 km ² of classified area, including the Plateau, and alongside, constructed composition ensemble — mostly public buildings). [1] The latter is especially important because it is responsible for the management of classified heritage, through the promotion of conservation and rehabilitation policies, which are fundamental to the pursuit of the defined objectives.

Acknowledging the importance and potential of this theme, future actions on this or others cases, outside Brasilia, are already understood, with the purpose of establishing an observatory, to monitor interventions on World Heritage sites and/or buildings.

A. Site and Building

The choice — based on the merit and worldwide recognition of the architectural quality — fell on the edified set that supports the Brazilian democratic system, in Brasilia, around the Plateau, in Three Powers' Square. In 1987, it was recognized as World Heritage Site by Unesco World United Nations Educational, Scientific and Cultural Organization (UNESCO): relevant fact to the scientific visibility of the research and to the deepen of the knowledge, on conservation and rehabilitation of buildings (world reference). At the commemoration of the centenary of Oscar Niemeyer, in 2007, a set of thirty of his buildings was classified by the Institute of National Historical and Artistic Heritage (IPHAN) as Historical Heritage.

From the various contacts established with local experts—who agreed to share information, with no reservations—emerged the interest in National Congress

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Carlos Madson Reis, Superintendent of IPHAN, DF, interview by the author, Brasilia, Brasil, June 2016.

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Palace, in Brasilia, a priority given its conservation status. Inaugurated in 1960 — the development of the project followed the progress of the construction — was designed by Oscar Niemeyer [1] — in 1988, was laureated by Pritzker Architecture Prize, "whose works have been among the most influential and recognized in this century have" — to accommodate the two chambers of Brazil's Government: Federal Senate (upper house) and House of Representatives (lower house), Executive and Legislative Powers, respectively, coordinated by the National Congress. Before, each one had its own headquarter in Rio de Janeiro, two independent buildings with autonomous support entities.

B. Maintenance Entities

The object, under analysis, is subjected to conservation and rehabilitation interventions dictated by two distinct and autonomous Entities, in areas defined at the beginning of the project — the building was divided in two, since the opening, a fence was installed then, but has already been removed — including subsequent extensions. Areas were occupied as planned: Federal Senate and House of Representatives, and together as services of National Congress.

The analysis on the performance of the two Entities, for rehabilitation and remodeling, reflects the year of 2015. The data to support the investigation was collected on the premises, conveyed by the technicians of the Institutions (on active duty or not), or obtained through official and informative portals.

The two Entities are overseen by Institute of National Historical and Artistic Heritage, Federal District (IPHAN, DF), and supervised by National IPHAN. All of them under purview of Ministry of Culture of Brazil.

Infrastructure Secretariat (SINFRA) from the Federal Senate, under the supervision of Commission of Directors — "(…) Assignments (…): to manage, control and supervise the architectural refurbishment works, directly and indirectly, restoration/retrofit and buildings modernization (…); (...) maintenance services to prevent, predict and intervene on the general infrastructures, e.g., electrical, mechanical, communications, hydraulic and water supply and sewage (...); to approve, manage and overseen the contractors (...); to analyze and approve, a priori, architectural projects (and infrastructures) in buildings on the surveyed area; to manage the plan building site (...) and participate in similar actions."; [1] and, Technical Department (DETEC), which reports to Board of Directors of the House of Representatives — "Technical Department Assignments (…): to manage activities such as engineering, architecture, conservation and adequacy of the administrative architecture of the House of Representatives, like: works, renovations, relocations, maintenance of telephony, audio, video, furniture, office equipment and graphics, electrical and hydrosanitary, air conditioning, fire fighting, etc .; as well as supervising the operation of restaurants, cafeterias, canopies, magazine stands, barbershops, elevators, conveyors, hoists, cleaning and garbage collection." [2]

C. Entities Participation and Data

The collaboration attained was shielded behind the comfort of the institutionalized bureaucracy, with some exceptions: employees unsurpassables in availability and solicitude. The manifested reserves are incomprehensible. Scientific research or another type of study — on any subject — can and should contribute to improve the effectiveness of the Institutions. Voluntary and timely participation would be fruitful and certainly substantial to rethink procedures.

It is important to highlight the progress made by the Government of Brazil when providing online data, in an effort to promote an ideal of transparency, concerning institutions which manage public money. Although the structure of each page is not always straightforward and does not present pre-defined disclosure models.

The Heritage will be monitored and a second trial is already planned for reassessment of the measures to be taken, in order to maintain an ideal condition.

II. Context

The foundation of a country capital, in the west-central part of Brasil, was idealized by Sebastião José de Carvalho e Melo, Marquês de Pombal — Secretary of State of the Kingdom of Portugal (the equivalent to a Prime Minister), during the reign of D. José I (1750-1777) — what did not come to fruition during the lifetime of the Portuguese Colonial Empire. Being consecrated in the various updates of the Brazilian Constitution, it was only materialized in 1955. The underlying idea always made sense among both politicians and population: the need to unify the Country and protect it from the ideals of independence, emerging in states, with more developed economies. This initiative was assumed by Juscelino Kubitschek de Oliveira, who assumed the presidency between 1956 and 1961.

On September 19, 1956, Novacap was founded to proceed with the studies and subsequent construction of Brasilia, and to ensure the purpose of bringing together the genetic and cultural diversity of Brazil. Later it declined into Electric Company of Brasilia (CEB), Environment and Water Treatment Company of Federal District (CAESB) and, also, Real Estate Company of Brasilia (Terracap) — a state-owned company of Federal District.

The House of Representatives, as a democratic body, dates back to the Portuguese Colonial Empire, and thus continued even after the Proclamation of Independence. Occupied two buildings in the capital, then in Rio de Janeiro. In the period prior to the transfer to Brasilia was installed in Tiradentes Palace, where it remained until 1960, with an area of occupation of 10.730 m2, reference to the draft project, to accommodate the needs of 326 parliamentarians. [1] However, the number of representatives increased, in an attempt to keep pace with population growth (now, it is limited to 513 by law), and with it the need for space. Later, it spurred an enlargement of the Main Building and of the Complex, in consequence. [2]

The Federal Senate, as a democratic body, goes back to the independence of Brazil, in spite of the interregnum, between 1937 and 1945. Was based in several sites in Rio de Janeiro — capital of Republic of the United States of Brazil (1889-1968) until 1960 — before moving to the Palace. In this case, it is important to note the area of occupation, 2.066 m2, in Monroe Palace, its headquarter until 1968. The base area considered, for the preliminary design phase, took into account the totality, 29.000 m2 after construction completion (although not yet constructed, in Rio de Janeiro), considering the occupation of the hemicycle, 63 senators (40. ºLegislature, 19595-59), three per state (in a total of 81, today). [1]

In a later draft an area of 48.615 m2 was considered, with a tower for each Entity, respective chambers and support spaces:

House of Representatives, 27.025 m2, an increase of 251.86 % considering the area of Tiradentes Palace;

Federal Senate, 21.590 m2, a decrease of 25,56%, whereas Palace Monroe (public consultation data).[1]

Prior to their relocation to Brasilia, the two legislative bodies — when together, by virtue of legislative tasks, are designated by a third noun, National Congress — had the technical capacity to conserve and rehabilitate the facilities, with total independence and adequacy to the reality. Once in Palace, a somehow complex coexistence was assumed, with delimited positions and spaces, as well as different support structures to administer and maintain it, according to the needs of each. Excellence would come from joining efforts to control the degeneration of materials, both interior and exterior.

III. The Object

The ideal of Material Heritage was never a desire of the more purist Modern Movement (MM). One of its precursors, Le Corbusier, understood the architectural object as rational in the form, industrialized in treatment and prefabricated in construction. With Niemeyer, the pragmatism of the MM came to live through the carved curve in the back of forces, sometimes disturbing. Mastery overcame dogmas: there is no surprise in the classification given to the vast work of Niemeyer, in fact, it was long overdue due to the uniqueness of the landscape.

The Palace is considered an icon of World Architecture, for its singular composition. Seen from the Ministries Esplanade, it appears on the nascent side as an upshot: confined between slopes, hovering over a mirror of water. The Main Building is composed by two horizontal blades, joined by a glazed surface, with a single interruption: a two level access walkway, entrance and cover floor. Which is 'crowned' by two domes: on the Senate it assumes the classical disposition; in House, the inverse. Annex I, two parallel towers of 28 floors, appears in the landscape as a representation of the rational: the left is occupied by the Federal Senate, the right by the House of Representatives.

The materiality is typical of MM: reinforced concrete structure, fully exposed facades, enclosed by steel and / or aluminum sections, glass surfaces, with floors and walls covered in stone or apparent reinforced concrete.

Modernism, even Niemeyer's, does not fit with patina, in the reading of surfaces, contours and lines. The Palace is no different, frames, finishes, ornaments, et cetera, do not accept that constructive anomaly without it appearing as an 'architectural stain'.

The general condition has weaknesses, damages are visible on the outside, e.g., presence of calcite, prominence of stone slabs, warped frames, inadequate resource interventions, et cetera. On the inside, floor coverings need intervention, specifically in public and common areas, e.g., worn stone grilles and discolored carpets. Some spans show signs of wear, much due to the collapse of hardware (latches, hinges, rails, guides, hangers, et cetera). The electrical and data infrastructure is the one with the greatest number of problems, e.g., there are, in parallel, several installations of different eras, somehow compatible with each other, with a negative impact on the most recent equipment. [3]

Some spaces receive special attention, in reforms, it was thought in the adaptation to assure universal access, lighting and interactive tactical equipment in the upper and lower houses, substantial construction works were undertaken in the plenaries, Ulysses Guimarães (congressmen) and Senate, in the White Room, and in the Green Room and its cafeteria. The rehabilitation of Secretariat of Social Communication (SECOM), from Trade Defense Department (DECOM), and the space of the Stenography to accommodate the political parties; the continuity of the program of deployment of jobs within the different agencies; while, continuing the replacement of existing furniture. [4]

The plan for the original set, Main Building and Annex (I), consigned enlargements, that happen to the measure of the necessities and availabilities:

In 1970, with the extension of the Main Building; and the new constructions for the House of Representatives, Annex II in 1965, III in 1973, and IV (a) in 1978; and,

For the Senate, only one, the Annex II, in 1977, until now.

The new construction is conditioned by the dynamics of population growth and the need to modernize services.

Despite its constructive robustness, the Main Building was subjected to some adjustment interventions considering the climate exigencies — subtropical, ranging between dry and very dry, with strong exposure to solar radiation (north), and intense rains (north/northwest) — with impact on façades exposed to those orientations, especially in the spans. E.g., the 'curtain' façade of Annex I of the Senate with brises-soleils, to manage the sun exposure and the inevitable thermal amplitude, promoted pluvial infiltration with damage to both materials and activities. The tower granted to the House of Representatives was completely rehabilitated, with the replacement of seals, trim and coatings, between 1981 and 1983, by the in-house architect, Haroldo Pinheiro. [5] Other window frames, with aluminum profile and guillotine-type aperture, installed in the façades of the Main Building promote

ventilation but compromise watertightness, due to the lack of maintenance and/or oversized dimensions, for the fittings, compromised the manoeuvring and control of the frames.

IV. Framework

A. Technical Department and Infrastructure Office

DETEC has two Sections, Civil Works Section (SOC) and General Services Section (SSG), with the capacity to delegate to third parties and, even, to undertake the work — with a fully equipped construction company with workshop yard, warehouse, depot and qualified human resources — to achieve the objectives. The team, dedicated to construction, arose from the need to intervene, swiftly, to adapt the building to the demands of the House (by the number of Representatives): upgrade spatial organic and preserve building systems. A large part of the team's human resources came from Novacap, which after the conclusion of the major construction works, became redundant in personnel. The advantages of this transition are indisputable, based on the deep knowledge, transferred between generations, that those workers have of the building, in general, and of the construction systems, in particular: capacities that allow them to intervene with diligence and poise.

SOC and SSG, whenever necessary, respond to the Department's diligences, in this case: Built Heritage Section (SPaE), first responsible for the maintenance; and, Building Design Services (SPrE) dedicated to construction. SPaE is responsible for the projects and technical opinions for refurbishment and rehabilitation of the Complex, either new or existing construction work, on interior or exterior areas/surfaces, as well as noble spaces. Accumulates the elaboration, defense and application of Plans, strategic and directors, to establish actions to support legislative activities, according to the needs of the House. Safeguards documentary, iconographic and defines graphic standards. Assumes the support, promotion and development of scientific research in the area of techniques of conservation and restoration of built.

The SPrE is responsible for the: execution of projects, complete or just define initial phases, for third parties' execution, and to deliver technical opinions on proposals submitted by those, in the branches of architecture and urbanism, according to Management Plans; define (Preliminary) Programs to guide decisions in future interventions; and, to support the scientific investigation linked to the competences, in the scope of the Public Administration.

The objective of SOC is to support the Construction Management Service and General Works (SGOSG), when obliged to: prepare documents to control work (measurements, schedules, timelines, lists of finishes, maps, specifications, et cetera); carry out construction work on real estate of interest to the House; assume the direction any construction work, regardless of its nature; assure technical advice; convey rehabilitation projects; manage and monitor compliance with technical regulations, safety and hygiene standards for the correct execution of work in the workshop and for the precise handling of equipment; conditioning materials, construction by-products and debris; manage the building maintenance plan; oversee contracted services; and, technically, support the procurement services of DETEC.

TABLE I. Areas and Occupation, 2015.

Buildings	Build Area	Establish Entities Areas	
		House of Representatives	Federal Senate
Original Main Building (a)	19 750 m2	12 466 m2	7 284 m2
Shared (b)	3 300 m2	1 650 m2	1 650 m2
Expansion (c)	4 639 m2	3 183 m2	1 456 m2
Annex I (d)	27 836 m2	13 918 m2	13 918 m2
Subtotal I — Palace (a+b+c+d)	55 525 m2	31 217 m2	24 308 m2
Annexes II	71 852 m2	27 602 m2	44 250 m2
Annexes III	16 381 m2	16 381 m2	
Annexes IV(a)	49 257 m2	49 257 m2	
Subtotal II	193 015 m2	124 457 m2	68 558 m2
Others	186 519 m2	90 720 m2	95 799 m2
Total	379 534 m2	215 177 m2	164 357 m2

SSG also provides SGOSG with information to develop civil construction, conservation and rehabilitation work, such as carpentry, locksmithing and painting. The difference between the first and the SOC is minimal, it only does not execute projects, but adds operational support to the Coordination of construction works and provides engineering services, or contracts them to third parties.

SGOSG, although referred in official documents, has no description of its delegated powers.

B. Infrastructure Secretariat

In the Senate, the safeguard of the spatial and constructive qualities of the Complex is entrusted to the SINFRA, that does not have autonomy of interventional

character. That is ensured by a committee composed of internal technicians and an external technical observer, representative of the IPHAN, DF. The structure of SINFRA is cohesive — which seems to be a natural consequence of its size, when considered its counterpart, DETEC — the management and coordination are centralized: the production of studies is in line with the interventions requested.

The Senate integrates a carpentry and a team of permanent electricians, capable of ensuring routine activities.

C. Analyzing the Technical Departments

In the Senate, human resources have less area ratio to develop work and protect the condition, when we observe the ratio of square meters per professional, results in a greater capacity to produce and prepare complete documents to launch works. In the House, the documents for consultation of services tend to be less detailed. From the data collected, we can verify that the two have the perfect capacity to conclude works processes, but not so much to translate them into completed works: the production of projects is superior to the work done, especially in the House.

The number of employees integrated in the staff cadres is reduced — when analyzing the ratio, technical per square meter — in view of the needs.

When scrutinising the number of external workers it is possible to deduce that the House assumes the preponderance, mostly with trainees, a consequence of the economic contraction that the country registers in most recent years. Question related to budget cuts on the expenditure side and investment: less available resources, both financial and human, less works.

Most of the resources are oriented to new construction, even in the face of economic constraints. Every option is supported by the need for space and functional requalification (reactive). Although the number of senators and congressmen is now limited, the personal devoted to their offices continuous to increased — in 1970, Niemeyer considered three workers for each of those, to develop parliamentary activities — to the point of having tripled, as well as the number of equipment required to perform the functions.

If the benchmark value is considered for similar buildings, with the same number of visits and daily users, 1563 m2 [Shohet et al., 2003] by production worker or technician, assigned to the maintenance, we verified an increase of 191.54%. [1] This could imply the existence of too many employees for those functions, an inference that fades when we realize that much of the technicians are assigned to the new construction. If we consider the total number of technicians for maintenance, for preparation of studies and projects, in 63 of them, we have 1 technician per 6000 m2 [Corti ҫos et al., 2012], to which we add the production professionals, in a total of 334, to divide by the total area, we get 1136 m2/Personal: 27,32% below the established efficiency standard: in part, explained by the effort applied in new construction. In this example, the 1536 m2 [Shohet et al., 2003] proves to be too high.

TABLE II. HUMAN RESOURCES, 2015. [4][5]

	Entities		
Construction Professionals	House of Representatives	Federal Senate	Total by Expertise
Architects	20	7	27
Engineers	53	22	75
Technicians — Architecture and Engineer	8	8	16
Production Workers		74	74
Contract Workers — Minimum Scholarly	163	34	197
Contract Workers — Medium Scholarly	6	59	65
Contract Workers — High Scholarly	0	11	11
Total by Professionals	250	215	465
m2 per Personal	861 m2/P	764 m2/P	816 m2/P

V. EFFICIENCY ANALYSIS

A. Management Strategies

In the past, space management suffered, due to various political configurations, in particular in prime spaces, with occupation to respond to the increase in the number of Representatives and support staff. The construction of the various Annexes has reversed the situation. The spatial reconquest of the Noble Halls allowed its re-qualification: for the use of architecture and furniture in the interior, the surrounding buildings and the views on exterior spaces.

The emphasis is on construction, in part because of the increasing need for space (building) or in adapting facilities to new political configurations. The state of conservation, despite the uniqueness of the architecture, is not alarming, but it becomes clear that it has been deprecated in favor of increased construction.

When evaluating the investment in works of the two Institutions, there is a discrepancy between values, around 112% for the Senate, Table 3, partly justified by the way of intervening in the patrimony.

Resource gaps in the Senate are filled with external services, so fewer internal employees and, consequently, greater delegation / acquisition of tasks (see number of contracted services).

Despite the difference between budgets, the House and the Senate's, the amounts invested in the main building are not evidence of the best constructive condition read in the space assigned to each one.

TABLE III. INVESTMENTS AND EXPENSES, 2015. [4][5]

Budget for construction works for all Complex	Entities		
	Câmara de Deputados	Federal Senate	Total
Predicted Amount	MEUR 5,73	MEUR 6,69	MEUR 12,42
Investment per m2	EUR 46,04/m2	EUR 97,58/m2	EUR 64,35/m2
Assumed expenses and paid	MEUR 1,64	MEUR 0,04	MEUR 1,68
Assumed expenses but not process	MEUR 4,09	MEUR 6,65	MEUR 10,74
Success Rate	28,62%	0,60%	13,53%

TABLE IV. ONGOING CONSTRUCTION, NOVEMBER 2016.

Ongoing Construction	Entities		
	Câmara de Deputados	Federal Senate	Total
Amount Contracted	MEUR 81,67	MEUR 6,69	MEUR 88,36
Amount Canceled	MEUR 42,95	0,00 €	MEUR 42,95
Canceled Rate	47,41%	0,00%	51,39%

The execution of expenses with works in the House of Congressmen, in 2015, according to the Management Report, chapter, "51 — Construction Works and Facilities", compared to the budgeted amount, is reduced (28.62%), which conveys inefficiency in launching and completing works.

There is an indicator, table 4, which makes it possible to perceive the effectiveness of investments, disclosed in the transparency portal, "work in progress", at the moment: of the 23 works in progress, 6 had their contracts canceled. Which means that 52.59% of the construction works were canceled or suspended. None of these have any relation to the main building. That value is confirmed by the document, "Projects and Actions of Administrative Management Accomplished in 2012 and Proposed for 2013", which indicates that 28,04% of the works have been interrupted or canceled, and states that in the last five years (financial years 2004 to 2008) an amount of MEUR 19,52, but only MEUR 5,47 were processed. In 2009, the implementation rate fell to 26.91%. There are recurring problems: delays, shutdowns, contractual terminations, et cetera. [6]

The indicators of efficiency, in Table 3 and 4, reflect the ineffectiveness in protecting the heritage, which shows signs of degradation. These circumstances may include the loss of time, the allocation of human resources and budgetary capacity (which may be used in other needs). The interferences in the reactive and 'structural' interventions promote the exponential degradation of buildings with an impact on the condition of the buildings, especially the older ones, such as Palace.

Accordingly to Senator Hélio José (PMDB-DF), "the notice of competition of a work should only be published after the completion of the execution project, in addition to providing for the compulsory environmental license before the bidding of the work" (responsible for the Project Law (PLS 269/2016) amending the Law of Bids (8.666/93). The pressure on the deadlines comes from the impositions of both Directorates, who coordinate the Department and Secretariat: Executive Committee, Senate and Board of Directors, House. They are constituted and coordinated by Representatives, elected by their peers, to meet the needs.

There is a transversal and political tendency for provisions, devoted to works, always amounts expressed in the general statement, to ultimately serve to balance the institutions' accounts when other needs emerge with importance to the democratic systems. In this case those are considered budgetary tools, and when this is so, interfere with the condition of the assets.

Although the House has staff dedicated to the construction and rehabilitation, process designated by 'Direct Execution by the House of Representatives', its capacity is not meaningful, e.g.: endeavor, 2009/294, [1] of block A and B, Super Quadra Norte, SQN, 302, 2nd Stage; in August 2012, the services assumed the completion of 24 apartments in block A: after those been abandoned by the contractor, the work was completed in 2016; Block B, which was the target of a new query, was delivered to the private sector. There is a significant and cyclical demand for the rehabilitation of the 432 apartments for the House members.

The House, as presented in the "Proposal for a Concomitant Audit Model for the Works and Engineering Services of the House of Representatives", in 2009, points to a future in which the necessities would pass to invest, more than MEUR 138.67 in big construction works and engineering services for improvement of the physical infrastructure, e.g.: Annex IV (b), IV (d), Annex V (or Annex IV (c)), functional apartments, et cetera. [7]

The Senate, through the Management Report 2015, in chapter "51 — Construction Works and Installations", stated that 35.32% of the total was foreseen, the large tranche, MEUR 4.35, for the complete replacement of four lifts in Annex I, five lifts in Annex II and one lift in the main building (Pregão Eletrónico n. º122/2015). [8]

The refurbishment and rehabilitation on the main building and annexes, focuses mostly on the interiors and

maintenance given the quality of the spaces, be it on the finishes, decorations or in the replacement of furniture. Due to political issues, and by imposition of the elected, in order to allow access and movement to the disabled, changes were made to respond to those needs. Computer systems and lighting have forced constant adaptations in both Plenary. [9]

TABLE V. GENERAL ACQUISITIONS BY CONTRACT PROCEDURES, 2015.

Type	Entities		
	House of Representatives	Federal Senate	Percentage
Invitations	MEUR 0,06	MEUR 0	0,06%
"Pregão"	MEUR 58,65	MEUR 47,53	98,42%
Competition	MEUR 1,64	MEUR 0	1,52%
Total	MEUR 60,35	MEUR 47,53	MEUR 107,88

B. Acquisitions Procedures

The use of the standard process "Pregão" (direct simple call), of an ambitious scope and without limit of value, for contracting works and services of simple nature, based on preliminary studies or summary descriptions. In the opinion of the Brazilian Federal Court of Auditors (TCU), regarding Infrastructure Secretariat, this resource tends to be extended to uncommon works and services, that is, without assessing the technical requirements. A situation that promotes the lack of technical definitions and even respect for standards: with a serious impact on deadlines, quality of work and expenditure considered. [10]

The simplified model, 'Pregão', existing system in both bodies, is conflicting for the parties concerned. The number of inaccuracies in those, result in the lack of effectiveness of the contracted services.

The Secretariat launches several procedures to check (lists) prices of the works — consultation, at least three entities — to protect the condition of the Historical Heritage/Landmarks. Viable tool — despite TCU's criticisms — but there is a tendency for reactive interventions and not programmed, as desired. [10]

C. Ongoing Construction

The focus of the maintenance organizations is on the new construction: in response to the requirements established by the Representatives. Senate, construction of Annex III. And House, expansion, through the construction of new buildings, due to the need for office space, in accordance with the increase in human resources of the support teams, through: the expansion project of Building Annex IV, the biggest of the Legislative, in budgetary terms. In 2017, 9.59 MEUR will be spent in the building which, when completed, should have an auditorium with 600 seats, exhibition hall permanently open to the public and underground garage in three levels with 357 spots. There are 120,000 m^2 of area to build; [1] and, the ongoing construction of Annex V:

Construction costs seem well balanced — despite the ratio of low price per square meter of Annex IV (b) expansion, see Table 6. In Brazil, the cost of new construction per square meter, in the Federal District, is EUR 303.30. [2] The average price/cost for new construction, charged to the Institutions, is (on average) 227.12% above public and private buildings. Those constructions are not first-rate or representative, but only complementary for public tasks / services.

The new construction works, from the documents consulted, reveal that those where long been assumed and scheduled:

Annex III of the Senate, goes back to 1986 — in 2005, the estimated value for its construction was around 8.10 m, after twelve years, with no change of area but with a technological increase of MEUR 10.50, if we add the inflation around 8% per year — the value now presented MEUR 37.85, has an increase of 360%;

The extension of Annex IV (b) was subject to a budget cut — from the recent financial crisis the country is under — from EUR 269.85 to EUR 107.94, a precise decrease of 60%: without reducing quantities or qualities of the construction;

For Annex V, MEUR 4.86 was estimated for the work; in 2008 it amounted to MEUR 18.32, if we apply inflation, MEUR 30.04, MEUR 38.17 is the current forecast, plus 27%, even on a tight financial control by the contingencies (referred above).

Warehouse Management in the Integrated Administration System (SIA), in 2009, amounted to MEUR 6.28, presumes today 12.12 MEUR, an exponential of 193% (inflation included);

Technology Center (CETEC II), foreseen MEUR 7.81 in 2009, at this time 11.6 MEUR, a rise of 143% (inflation included).

Adjustments are considered in the light of the management of the budgetary resources, multiannual, by the Boards. Which takes value from the responsible technicians and processes by those developed.

There seems to be a lack of sensitivity to the condition of Patrimony, representative of the Brazilian State, which deserved greater care.

Table 7, there is a greater investment by the Senate: despite the difference of area, the Budget is similar.

The discrepancy between the amounts to be invested in residences is related to the lack of attention to that heritage by the House of Representatives, since its construction, or the lack of financial availability in favor of the need for new work. On the other hand, the Senate has always had a stable number of Senators, perhaps a greater budget availability and less need for new work

allowed to warn, in time, scheduled interventions on the residences, as well as on the Complex.

TABLE VI. NEW CONSTRUCTION PROGRAMMED: AREAS AND BUDGET.

	Entities			
	House of Representatives	Federal Senate	Cost Predicted	EUR/m2
Anexo III		47 000 m2	MEUR 37,85	EUR 805,32/m2
Anexo IV(b) Extension	193 783 m2		MEUR 114,91	EUR 592,98/m2
Anexo V	36 385 m2		MEUR 38,17	EUR 1 049,06/m2
SIA	13 200 m2		MEUR 12,12	EUR 918,18/m2
CETEC II	14 700 m2		MEUR 11,6	EUR 789,12/m2
Total	230 168 m2	47 000 m2	MEUR 190,93	EUR 688,86/m2

When comparing the "Investment per Area" for the Complex with a weighted average of EUR 34, 97/m2, based on five public acquisitions — in average, considering five electronic market calls — [1] it is evident that the maintenance of the existing area is deferred in favor of the new construction.

On the maintenance considered for the residences of the parliamentarians, those consigned to Members of Parliament were not maintained in the desirable condition, since their construction. However, today, there is a real need to recover and maintain them. The values shown — EUR 820,93/m2, in Table 7, construction work by SGOSG (DETEC); or EUR 995,53/m2, through services contracted to third parties, as announced in the Transparency portal, Table 8 — are high when compared to the average cost for the Federal District for new construction, EUR 303,30/m2, 270,66% or 328,23%, respectively; even when assuming the higher parameter, EUR 563.96/m2, 145.57% or 176.52%. Those destined for Senators, which have always been maintained, require less expenditure. This, in line with that indicated by a study for middle-class condominiums, EUR 0.68 / m2.

(1) House of Representatives [House of Representatives], Obras em Andamento [Construction under going], http://www2.camara.leg.br/transparencia/licitacoes/obras-em-andamento

TABLE VII. ONGOING MANAGEMENT: AREAS AND BUDGET.

Buildings	Entities	
	Câmara de Deputados	Federal Senate
Complex Area	124 457 m2	68 558 m2
Cost Predicted	MEUR 7,19	MEUR 7,6
Investment per Area	EUR 5,78/m2	EUR 11,09/m2
Housing area	42 720 m2	53 754 m2
Cost Predicted	MEUR 35,07	MEUR 0,48
Investment per Area	EUR 820,93/m2	EUR 0,89/m2

TABLE VIII. ONGOING MAINTENANCE UNDER RETROFITTING: AREAS AND BUDGET.

Buildings	Entities	
	House of Representatives	Federal Senate
Housing Area	48000 m2	—
Cost Predicted	MEUR 47,78 (1)	—
Cost per Area	EUR 995,53/m2	

VI. CONCLUSIONS

In the course of the enlargements of the Complex we can perceive, by simple observation, through development policies, that the emphasis has always been on the new, instead of being balanced with conservation and rehabilitation. The tectonic quality allowed, through the technical mastery of the construction systems, to achieve a functional durability that endures until today.

The close link between the technical units and the Management Boards, of both Democratic Bodies,

guarantees the definition of direct guidelines, by its members so that improvements in working conditions are achieved, in the immediate future. Only anomalies or lack of conservation are observed if they interfere with the normal functioning of the Houses. All means are made available to meet the performance of the Representatives, e.g., "(…), the president of the House, Eduardo Cunha (PMDB-RJ), determined on Thursday that the dome of the House, in the National Congress, would be illuminated green and yellow. Asked, the Casa's advice did not inform the reason for the decision.(…)".

Dedicated work groups would be the key to optimal maintenance. Constituted by technicians from Secretaria and Departamento, only to deal with the needs of Palace: the equity value justifies it. The constitution of these groups would enable a dedication focused on the study, preparation, elaboration of projects for immediate response on the various perceived needs, e.g.: qualities of the spaces and resolution of the growing anomalies, interior and exterior, according to the original, if possible.

A way to prevent investment dispersion — oriented towards the new — would have to define a specific heading for the preservation of the emblematic heritage, e.g. Palace and Annex I, to understand the shortcomings and act, accordingly, to safeguard the desirable condition. With respect to image, integrity and aptitude, appropriate to values: architectural, artistic, cultural, technical (constructive), institutional, democratic, et cetera.

A new generation of managers and, especially, technicians, of which architects stand out, believe in a cohesive future between the House and the Senate for the maintenance of Palace. Bearing in mind the idea that the common parts are maintained by the two Entities and distributed on their budgets in accordance with the areas allocated to each.

It is believed, through dialogue with participants, that it is possible to envisage a better condition for this unique patrimony: this conviction arises based on the will, the knowledge and the experience of all involved in the maintenance process.

VII. Appendix A Federal Senate [Federal Senate] Organic Structure

In the Senate we have Secretaria de Infraestruturas (SINFRA) with an organic structure constituted by:

- Secretaria de Infraestrutura;
- Assessoria Técnica de Planejamento e Obras;
- Coordenação de Arquitetura;
- Coordenação de Engenharia de Manutenção;
- Coordenação de Engenharia de Obras;
- Coordenação de Telecomunicações;
- Diretoria-Adjunta da SINFRA;
- Escritório Setorial de Gestão da SINFRA;
- Gabinete Administrativo da SINFRA;
- Serviço de Atendimento ao Usuário;
- Serviço de Marcenaria.

VIII. Appendix B House of Representatives [House of Representatives] Organic Structure

In the House of Representatives, the functions related to construction and buildings fall on the Departamento Técnico (DETEC);

- Coordenação de Planejamento e Gestão (CPLAN);
- Coordenação de Administração de Edifícios (CAEDI);
- Coordenação de Engenharia de Equipamentos (CEQUI);
- Coordenação de Engenharia de Obras (COENG);
- Coordenação de Engenharia de Telecomunicações e Audiovisual (COAUD);
- Coordenação de Projetos de Arquitetura (CPROJ).

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continuous surveys. We named the documents "UMANOSUKE FUNAKI ARCHIVES" and herewith try to show its contents and values.

Figure 1. Old Koga Bank Head Office.

B. Personal History of Umanosuke Funaki

Table I shows the personal history of Funaki, which we have made referring to the reference [1]. He was born at Kiyama village in Saga of Japan in 1889. He entered Saga Prefectural Saga Technical High School (hereafter, ST high school) in 1904 and learned the basics of architecture. After having worked in Saga Prefectural Government Office for several years, he established Funaki Komusho (Funaki construction co.) at Akamatsu-cho in Saga. The exact year he established is unknown, but it is supposed that he started the business already at the beginning of the Taisho era because specifications made by Funaki Komusho in November of 1913 are left in the UF Archives.

According to the book titled "Reimei [10]" of the ST high school publication, he also worked as a president of Saga General Construction Association other than as an architectural engineer. He participated in an activity of revival of the architecture course of the school department he graduated from, and contributed to the architectural education of Saga. He died at the age of seventy-five years old in 1964.

II. Medhodology

First we decide method of categorization. According to the previous studies, they mainly take two methods of documents analysis as follows: One is categorized by building type such as school, temple, shrine, general building, house, etc., and another is categorized by document type such as construction document, painting, rubbed copy, letter, etc. In this paper, we use categorization by document type.

The research methods are to check the following items for one document, building type, document name, data of document, existence of Funaki's seal or signature, condition of document and document size. In the case of photographs, letters and publications, we added place, sender and publication year, etc. respectively. The UF archives was classified into 4, ex. drawings and estimates, private documents, publications and others, and besides it made sub classification in the category. We count documents which are independent as one item. In case of booklets including drawings and contracts comprised of several pages, we also count them as one item.

TABLE I. Personal History of Funaki

Year	Jp Year	History	Architectural work
1889	Meiji 22	Funaki was born in Kiyama village, Miyaki-gun, Saga Prefecture	
1900	Meiji 37	Enters Saga Technical High School	
1903	Meiji 40	Works at Saga Prefectural Government Office as a temporary employee	
1904	Meiji 41	Completes Saga Technical High School	
1905	Meiji 42	Marries in October	
1908	Meiji 45		Kanzaki branch office of Koga Bank
1913	Taisho 2	Establishes Funaki construction co.	A warehouse of Kanzaki Association
1916	Taisho 5		Koga Bank Funaki's own house
1926	Taisho 15		Saga Public Hall Ryutai Temple
1929	Showa 4		Takatori's home Ryukoku Junior High School
1930	Showa 5	Participates in an activity of his old high school	
1935	Showa 10	Works as a president at Saga General Construction Association	
1937	Showa 12		Library of Saga Senior High School
1938	Showa 13		Chotoku Temple
1940	Showa 15	Works as a member of a municipal assembly (12th)	
1964	Showa 39	Death（75 years old）	

Then, we check the following things in each document: building type, document name, data of document, existence of Funaki's seal or signature, condition of document and document size. In case of photographs, letters and publications, we add place, sender and publication year, etc. respectively.

III. Results

A. The Details of the "UMANOSUKE FUNAKI ARCHIVES"

Fig. 2 shows the result of the categorized items, so that the categories are I. architectural documents, II. private documents, III. collection of publications, and IV. other documents. The total number of the documents is 756. The characteristics of the UF archives are covered almost the term when Funaki actively worked as an architectural engineer. The term that the UF Archives were made is 54 years from 1898 to 1952 and included the documents over his public and private. In addition, the documents such as his assignments and textbooks when he was a student are left.

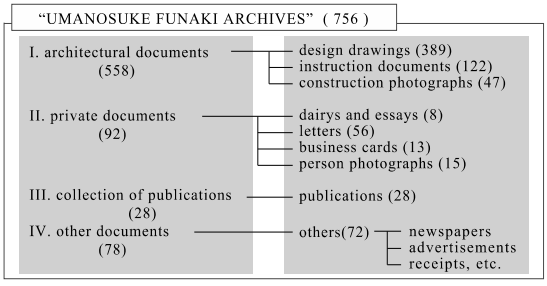

Figure 2. Categorization of "UMANOSUKE HUNAKI ARCHIVES."