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EWV: Re-drawing operations: methodology questions and results

We only see what we know

J. W. Goethe

Metodology

As it was defined since the writing of the application proposal of our research project, the main purpose of redrawing original design working drawing should have been that to update the buildings' representation that then could serve as an essential basis for their study.

In practice we gathered any available information from the archives, from photographic surveys, from the field work measurements and from the authors' statements about selected single buildings and then patiently tried to integrate and synthesize it into the minimum necessary number of plans, sections, elevations and details, that could offer a sufficient definition of each built work.

That is to say that since the beginning we planned to re-draw the design drawings of a consisted number of works. So in terms of methodology the first question to explain is why we decided to act in this way, while many of you may simply observe that it always preferable to study and divulge the original drawings about an architectural piece of work.[1]

Moreover it is also necessary to think about how the different representation methods and tools have always been directly linked to the architectural specific conception in the various historical epochs.[2] It must be then always considered how drawing is not just a simple mean of the technical organization transmission and it is also something essential with respect to the spatial imagining vision. It can also be remembered how every different architectural culture has always adopted its own communication codes both at the level of interpersonal relationships and at the level of the representational and symbolic values.

Anyway even in the full consciousness of such questions, in our case, we simply had an earlier problem, as we were conscious about the fact that this would not have been a realistic possibility. Since the beginning we were aware about the fact that we would had have to deal and work in rather different conditions from those of the typical organized archive. I mean we were aware about the fact that since the beginning we knew that most part of the drawing documentation about the works, we were going to study, it was dispersed in personal or public collections, which were more or less informal and not yet scientifically organized as such, neither prepared for any transmission or divulgation process.

So it had been part of our work to search for the original drawings in whatever place and condition and whenever moment we could have find them. Then we frequently happened to use quick

1 - Observation made also by Edward R. Ford in the Introduction of his ground-breaking work, *The detail of Modern Architecture*, MIT Press, Cambridge (Mass.) and London, 1990.

2 - With respect to this see also the referential essays collection by James S. Ackermann *Origins, Imitations, Conventions: Representation in the Visual Arts*, MIT Press, Cambridge (Mass.) and London, 2002.

photography as the only available reproduction mean of the drawings we found. So you may understand that the majority of such drawings reproductions might not have been clear enough, especially when considered as a separated document.

So our intent in collecting and redrawing those documents it has been that of synthesizing and making manageable all the information that we found about a certain number of selected buildings.

In doing so, the peculiar and original style of each draft document might have been lost by the process; but on the other hand the 'new' representation form of the designated buildings might have offered more effective comparison possibilities because of the resulting common format.

Anyway the original source drawings have obviously been listed and properly organized in the whole research database system.

So the methodology that we employed advanced as follows: (1st step) gathering of all the information on the building to be studied by re-drawing operations; (2nd step) defining common graphic criteria to be adopted in redrawing; (3rd step) construction of CAD base drawings (i.e. digital and vectorial versions of plans, sections and elevations) of the works in question by incorporating any information collected at the archives, photographic surveys, field work and author statements.

This work resulted in the conceptual organization of any scattered information previously found out, and the incorporation of various sources into an updated drawing version for each certain building, which have finally been defined by a limited number of new representative drawings ranging from the overall plan up to the construction detail.

On the base such operative principles the following a first group[3] of case studies have been worked out:

-Prenda Housing, Luanda, Angola – Fernão Lopes Simões de Carvalho, José Pinto da Cunha and Fernando Alfredo Pereira -1965

-National Radio-Television Bldg, Luanda, Angola – Fernão Lopes Simões de Carvalho, José Pinto da Cunha and Fernando Alfredo Pereira -1963/1967

-Railway Station, Beira, Mozambique – João Afonso Garizo do Carmo, Francisco de Castro and Paulo de Melo Sampaio -1957/1966
-Pyramidal Nursery School, Maputo, Mozambique – Pancho Guedes -1957/1963
-Polana Secondary School, Maputo, Mozambique – João José Tinoco and José Forjaz - 1970/1975
-Khovo Lar Student House, Maputo, Mozambique – Pancho Guedes - 1966/1973
-Entreposto Warehouse Bldg, Maputo, Mozambique – João José Tinoco and António Matos Veloso - 1969
-B.N.U. Headquarters Bldg, Maputo, Mozambique – José Gomes Bastos – 1954/1964
-Montepio Housing Bldg, Maputo, Mozambique – Alberto Soeiro – 1955/1959

-Monteiro e Giro Mixed use Block Bldg, Quelimane, Mozambique – Arménio Losa and Cassiano Barbosa – 1954/1966

3 - In this first phase the (EWV scholar) architect Paulo Silva, has been the one who effectively carried on the re-drawing work, while I acted as supervisor.

-Cerâmica Montegiro Factory, Quelimane, Mozambique – Arménio Losa and Cassiano Barbosa – 1958/1960

As it can be observed the selection could not have been balanced between Angola and Mozambique; that means that, beyond the importance and representative value of each single building, the final choice selection must of course have been based on the availability of the original drawings and on the possibility to visit the pertinent buildings, so as to verify the real situation.

On the base of such a general outline of the re-drawing process, it can be reasonably affirmed that with the word redrawing we do not intend a simple copying operation.

In our experience re-drawing the selected buildings corresponded to going through the comprehension of the correspondent design process in order to making new drawings aimed to fully illustrate the buildings in any of their parts -from the foundations to the roof- and at every scale -from the overall plan to the construction detail as I said before-.

In practical terms this meant two specific things:

The first is that the drawings, we made, do only partially coincide with existing drawings; i.e. many times we occurred to draw a plan at a different level from those given by the original drawings, many times we occurred to draw a section which was not existing in the documentation, and we also had to think about a synthetic detail drawing to illustrate each building construction system.

The second is that, while we were making the new drawings, we wanted to update the information and therefore integrate any kind of information about the possible significant differences from the hypothesis which was represented in the original drawing and the reality which we observed in the visited existing buildings.

Questions

Certainly the shifting between the original drawings and the reality of the existing building something is something intrinsic with the problematic of the re-drawing operations, and that's why it worthwhile to pass in review some of the single case studies by illustrating each one specific adaptations that we decided for.

Beginning with two relatively simple cases that are given by the Monteiro e Giro Factory and the Monteiro e Giro mixed use block both of them in Quelimane, both of them designed by architect Armenio Losa. Those were the only two buildings, the documentation of which was found in a proper archive, which is the archive of the faculty of architecture of Porto University. So in this case we could have access to a plenty of original drawing documentation; then we had the possibility to visit and verify them and moreover in the case of the mixed use block we had also the possibility to live in the part of it which is the Chuabo Hotel. Thus the redrawing work mainly consisted in a coherent synthesis of the huge amount of the available documentation.

Another relatively simple case has been that of the Polana Secondary School in Maputo, where a significant original drawing documentation, could have been integrated with the information resulting from a selected parts specific survey, that we could led with the help of the students of the local faculty of architecture, in the occasion of the recovery design workshop that was organized within the same EWV research program.

But those were the almost unique cases; as in all of the others we had to squeeze information out from the, not complete or not certain, available documents. The Beira Railway Station, for instance, represented a case where several punctual differences between the original drawings and the realized building have appeared; those are related with the demarcation of the restaurant area and the ticket office and the vault base line openings. In our drawings the final built version has been represented, by the confrontation of various series of execution drawings and the constant observation of the photographs of the survey verification operated when we visited the building.

Similarly in the case of the Angola National Radio-Television Bldg some significant differences between the original drawings and the realized building have appeared but, in this case, we could arrive to the definition of the realized building by the observation of some old photographs that have been taken during the construction phase.

In the case of the Pyramidal Nursery School in Maputo, the original drawing, we used as a starting point, was lacking a top part of the ground plan, and we had to replace and conceive it on the base of the survey photos, which information have been fitted into the building modular metrics extension.

A similar incident happened with the Maputo students' house called Khovo-lar, where we also had to deal with a not complete original drawing. But here, as we had no photographic or any other kind of documentation of the problematic part, we had to assume to leave that part in blank.

Finally a quick look also to the most complex situation, that corresponded to the Prenda *Housing*, in Luanda. In this case, on the base of the original overall plan and on the base some aerial views plus the building typologies' catalogue we tried to outline a hypothesis representing the realized plan.

So as summary remark it must again be affirmed that we did not made a complete and effective survey -it was not our ambition nor we could have had the possibility- therefore those drawings are representative of the hypothetic and synthetic representation of each building at the moment of its completion; and it's necessary to made clear that, as such, they are subject to some possible degree of error.

Anyway those are just some general information to give an idea of what the re-drawing work has consisted in and, even because of the problems that it raises, how this practice could be said as a sort of design concept transcription operation.

As with the long hours necessary for traditional drawing, the process of elaboration of a digital new drawing constituted a unique possibility of immersion in the reality which was to be represented; as a process of evaluation of the possible options comes into play in the form of ideal interrogation between who was studying the building and who was been designing it. Moreover as regards to the technological process leading to the mechanical printing of the drawing it is evident how this could reach a much higher resolution in comparison with that of manual elaboration, therefore the possibility to join together in a single view both the whole configuration of the building and the details of its parts results wider. Cautiously avoiding the risk of using new graphic forms of expression outside the common given conventions, as it is evident in all of the drawings integrating this research, the opportunity to enhance the traditional practice of architecture technical drawing through the advantages accruing by CAD has therefore been explored.

Results

Subsequently the advantages of re-drawing practicing are equally apparent. That is to say those new drawings we made are trusty and real enough documents that correspond to the understanding of each building process of material realization. The continuous oscillation between analysis and synthesis principles has led us to the identification of all the constructive elements and to the observation of their logical aggregation. By making the new drawings we could study how the composing parts result in whole of the buildings. The result is the precise presentation of some works, that, even in their small total number, constitute a sort of gallery that enables a specific interpretation of the whole phenomenon.

The forms of the buildings are not an abstract scheme; they get real in the materials they are made of, and the scenery of ultramarine Portuguese Modernism is made of exposed reinforced concrete elements, stone facing insertions, whitewash plaster portions and/or glazed tiles surfaces.

As a common criteria in our new drawings, we always tried observe and therefore to maintain visible the materials' differences and to specify the load-bearing system. As result of this work we argue that the analyzed buildings, even though have different authors and necessarily present variable solutions in their spatial organization and in their construction detailing, but they are also linked to a common feeling about forms and materials. I.e. most part of the observed buildings explore with enthusiasm the plastic versatility offered by the adoption of reinforced concrete as the constant building material and at the same time constantly play on the separation between the load-bearing structures and the volume envelope definition to generate a variety of shading and passive air circulation systems in the tropical climate. But anyway that formal appearance, which we recognize as characteristic, is here deriving from the specificity of determined technical solution. In this sense the re-drawing operation proved a certain effectiveness to reveal the tectonic in relation with its determined conditions in a given place and to meet specific requirements, even taking into consideration the potential artistic intentions.

To sum up, even if we could re-drawn a limited amount of works and we are aware that within our gallery many important buildings are still missing; nonetheless we think that the selected ones have in the whole the power to represent the morphological and constructional and aesthetical values the modern movement architecture experience in Lusophone African countries.[4]

4 - It must also be said that this has been just an exploratory work that could, and effectively has been then, be continued in the future, with the exercise of the same methodology upon the larger amount of buildings, operated by the other scholar architects of the EWV team upon those cases, which documentation was collected in a later phase our investigation.