

The Reconstruction of the Barcelona Pavilion

The reconstruction of the Pavilion designed by Mies van der Rohe for the International Exhibition of Barcelona was first considered in 1954, when Oriol Bohigas proposed this for the first time. Information on the whereabouts of the Pavilion was confused and there was a persistent legend that the Pavilion remained in Barcelona, stored away in a secret hiding place. Nothing definite was known of the fate of the German Pavilion after the German authorities vain attempts to sell it and so they left it in Barcelona, but it was thought that it had finally been dismantled and the more valuable parts shipped to Germany.

In 1957, Oriol Bohigas again wrote to Mies van der Rohe in Chicago to propose the reconstruction of the Pavilion. The answer was a short letter expressing satisfaction with the project and stating the designer's intention to personally take charge of the reconstruction while warning of the high cost such a project would most certainly entail. Since then, the project has been a recurrent topic in Barcelona with various different viewpoints on the final aim and site. The decision leading to the Pavilion's reconstruction was taken in 1980, when Oriol Bohigas was Delegate for Urban Planning and he stated that the only way in which the project would ever get under way was by commissioning an executive study which would set out all the different technical, philological and financial aspects of the project.

We were invited to be part of the team responsible for the study, and each of us was expected to contribute specific areas of knowledge and expertise which would aid in successfully completing the study. After the vicissitudes, delays and problems inherent in a project involving so many different interests and viewpoints, the moment has arrived in which the city of Barcelona, through its Public Foundation for the Reconstruction of the German Pavilion of the 1929 International Exhibition, has achieved its objective.

Those of us who have taken part in the reconstruction of the Pavilion now have the pleasure of not only showing off the finished Pavilion, but also of explaining how the project developed and why certain decisions were necessarily taken leading to the final result. Reconstructing from scratch a building of such significance in the architectural history of the 20th century is a risk undertaking, and even more so when the building in question has over the years become a focus point for the confluence of ideas, sources and objectives of European architecture. Furthermore, with the passing of the years, the figure of Mies van der Rohe has become that of one of the greatest architects of our time whose work, more than that of anyone else, expresses the rational desires of modernism.

Although building a copy may appear a trivial task now that our work is finished, we must confess to feeling a great deal of satisfaction with the completed project. Just as the work of a composer or poet demands to be expressed by

being interpreted, in this particular case the true quality of the van der Rohe design needs to be seen in its true dimensions to provide a solid image of its spaces and colours. Only a persistent cultural romanticism could prevent us from revealing the mystery hidden behind the old photographs of the Pavilion. But, in the same way that architecture has frequently found new inspirations in the recreation of past designs, this is not the moment to hesitate out of a reverential respect for the future before the reconstruction of the Pavilion. If we should feel a certain irreverence, when taking this step, we also have the feeling that only after taking this first step we can produce something of value.

A temporary building?

Most discussions dealing with the reconstruction of the German Pavilion start from a wrong perspective. It is a fact that the Pavilion was considered a temporary one and therefore, from the beginning, was thought of as an ephemeral and transient construction for which the concept of durability, the "firmitas vitrubiana", was not applicable. But, when the construction of the building is looked at and the technology and concepts are analyzed, the idea of a transient and temporary building begins to appear doubtful, to say the least.

This premise must be examined from the beginning, because the reconstruction basically represented an exercise aimed at clarifying what was permanent and what was not so much the result of improvisation, but rather the result of the haste with which the building was finished, and the problems this posed when trying to evaluate the quality of the finished product. To begin with, no building constructed on solid armoured cement foundations and with walls of the same material – although in the end the walls were made of travertine covered tiles with marble and travertine walls on a metallic supporting structure and with two flat platforms on a chromed steel framework – is either as temporary or as far from temporary as the Seagram building or the Farnsworth house, constructed a few years after the Barcelona Pavilion.

In our opinion, the concept of the Barcelona Pavilion was neither as ephemeral nor more so than other contemporary structures built with modern technology in which the structure itself and the partitions are separate. The predominance of stainless steel, glass and stone do not evoke an image of fragility or limited lifespan as all are long lasting materials. The stable quality of the metallic walls and travertine platform evoke stable and long lasting images which bear no relationship with the mobile, prefabricated or »do it yourself« buildings so typical of our time.

The constant reference by Mies van der Rohe to logical thought in construction and to the »ultima ratio« inherent in

III. 1

Barcelona,
the German Pavilion
(1928-1929) by
Ludwig Mies van der
Rohe after its recent
reconstruction



the criteria for technological excellence ever prompt one to the necessary differentiation between the concept of a lasting building and its construction within the limits required for its conservation. It is the simplicity of the building itself which points to the complex solutions required for its conservation. The absence of drains was possibly the most important problem posed by the total flatness of the roofs and the floor coverings.

But it may be that the largest difficulty arose from the fact that the structure of the roof was not given the calm and thorough study it required. Mies van der Rohe envisaged a platform structure resting on eight cruciform columns with beams which were to be solid and would not be visible for more than 20 cm on the sides. When this proved impossible due to the open spaces of the structure, reinforcement was needed and they became sloping in the central part and were quickly and somewhat improvisely covered with macadam on the outside and plaster panels on the lower half of the structure. This solution, a far too rapid and above all, far too cheap looking one, was acceptable only because the building was planned to last one year only. If this were not the case, if the Pavilion had been designed for a longer period, a different solution would have had to be found for a really lasting roof.

In the building, as reconstructed at present, the problem of the drains has been solved in a simple manner by giving all the travertine pavements the appearance of a floating surface so that the spaces in-between the joints collect the water at a lower level, with adequate slopes and an underground drainage system which collects the water from the pavements and from the two covering platforms with an imperceptible, but useful 0,5% slope.

As far as the platforms were concerned, the most significant decision was to construct them in a slightly armoured

concrete according to a double networked structure. This conserves what in our opinion is the primordial concept: the form and size of the horizontal platforms with their straight planes, even though this implied sacrificing, to a certain extent, the single direction in which the hidden part of the structure of the Pavilion was meant to run. This also avoided the need to use the false supports which Mies van der Rohe needed to use, by resting the flying beams on the walls wherever possible and thus solving the problem of excessive weight on the outer ends. The poor solution of placing an open air plaster cover on a metallic structure without adequate insulation was solved by using a concrete structure. Also, we avoided an increase in the supporting section, which in the original Pavilion was thicker than 30 cm, by using the practically flat finish of polyester fiber for the outer facing, without joints, in the surfacing.

The site

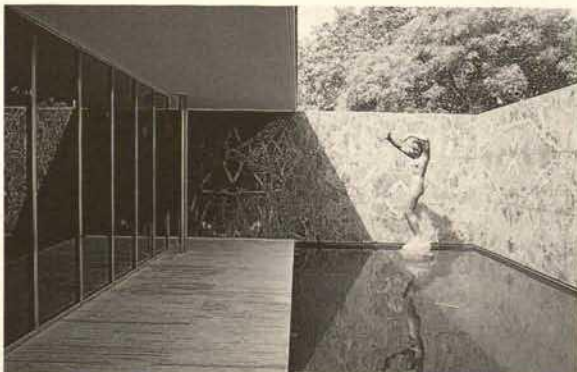
It is particularly noteworthy that the Pavilion has been reconstructed exactly on the same site. In fact, some projects for the planned reconstruction treated the Pavilion as a universal and abstract building not related to the site on which it was placed, but nothing could be further from the truth, and the subtle use Mies van der Rohe made of the relationship between the site and the shape of the building. This has been pointed out repeatedly. Mies van der Rohe personally changed the site of the building several times from the initial project for a construction on the esplanade between the Alfonso XIII and the Victoria Eugenia Palaces. Placing it to the north of the Alfonso XIII Palace provided the Pavilion with a site at the foot of the grand esplanade which was the easiest thoroughfare for reaching the 'Spanish Village'. The placement of the podium and the main elements, the direction, the transversal axis which adjusts to the axis of the large plaza and the longitudinal axis supported by the perpendicular wall of the Victoria Eugenia Palace are placement features inherent in the building itself.

The evolution of the building as a response to the site itself, a response each time in closer harmony with the site and the conditions governing the placement imposed by the Barcelona authorities for the general planning and services which should exist in the area, is equally important. The plan published in 1929 by the Genzmer article, which has frequently been reproduced, shows the building on a platform running around the full perimeter. This initial idea appears in some of the preliminary drawings for the project as well.

But from the moment that Mies van der Rohe realized not only which exact site the building should occupy but also, and above all, took into account the sloping grounds, the placement of the building underwent a decisive transformation. In floors II and III and the floor made with marble, the platform disappeared from the perimeter to adopt a more complex form in closer relationship with the true slope of the ground. However, it was not a simplification arising out of financial considerations which resulted in the disappearance of the platform from the posterior and lateral sides, while at the same time anchoring the travertine and marble walls directly to the soil. Rather, it was an

III. 2

Barcelona,
the reconstructed inner
courtyard of the German
Pavilion with an
original sculpture of
Georg Kolbe



important change in the original concept in which the classical platform, with obvious Schinkelian roots, was made more movable and universal and even picturesque in a far more particular concept and adapted to the original abstract features of the terrain.

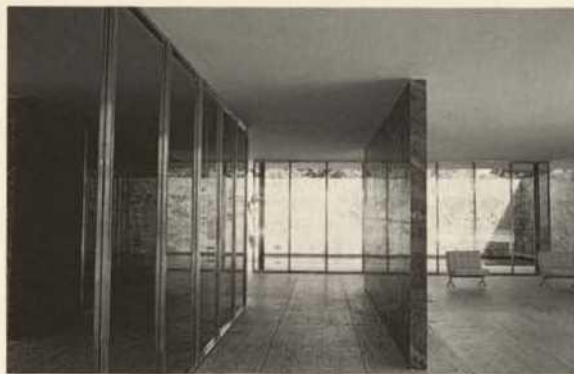
In the same manner that the main access staircase is placed on the side rather than in the front of the building, so as to follow the approach and to adapt to the reduced access space of the side entry, the initially rectangular podium became a smaller supporting structure which precisely responds to the different topographical features of the terrain and so gives rise to a subtle variation in the platform-terrain relationship – as so well expressed by Jacques Paul – which brings to mind the sensitive understanding of the classical-picturesque tradition extending from Schinkel to Behrens, rather than the rigid, abstract values of the French classical concept posed by Durand.

This is the foremost reason for the final version and for our rejection of the generalized interpretations published in 1929 and which, in the 1960's, were widely advocated with W. Blaser as the main proponent. After detailed and profound study of the project and the site we feel closer to the position adopted by Glaeser and Tegethoff, not only because they more closely respond to the true building but also because we are convinced that the platform and its relationship to the site, and the changes adopted by Mies van der Rohe, were not only dictated by a lack of resources or by last minute problems but are in reality the result of a closer understanding of the site, which brought with it the inclusion of these features in the final shaping of the building.

Dimensions

The excavation of the site on which the building was constructed gave an understanding of the exact dimensions. At its widest the building is 18,48 meters deep with a maximum length of 56,63 meters. These dimensions allow the base module of the project to be established at 1,09 x 1,09 meters and so serve to calculate the exact measures of the remaining parts of the building.

It was clear that the module was not rigid enough to establish all dimensions coincidentally. We also cannot fail to point out that the different measures given in the plan by Köstner and Gottschalk are minimal but constant variations which, in our opinion, must not be taken as a decision coming from Mies himself to establish small and almost negligible differences of 1/2 or 1 centimeters between the modules in an attempt to negate the regularity of the lines. Between the rigidity proposed by Blaser and the flexible diversity of Joan Raveillat it appeared possible and rational to evolve a concept in which the modules for the building would coincide between the travertine module for the walls and the floors, both as the original plan envisaged and in fact possessed. We are certainly convinced that the disparities in the modules reflected by Köstner and Gottschalk arose from the need to adopt the supply of stones to the type of foundations and changes adopted in Spain before the material became available. Today we know that the original construction must have been started in February 1929. As reflected in extant photographs of



III. 3

Barcelona,
view into the interior
of the reconstructed
German Pavilion

that time, it is probable that at the moment when the construction started, the cutting of the stones had not yet begun. It is surprising that in the building the walls and floors were most likely done with only forced measures before a more detailed, accurate project was available.

On the other hand, there was the problem between the ideal vision of the building and the building as it needed to be constructed, which also became an important question for the exterior materials used for the lateral and the posterior parts. It is known that the construction of the Pavilion was threatened by halting at various times. The main reason was the high cost of the German industry installation for different palaces to which the additional cost of the Pavilion had to be added, and for the realization of which the Spanish authorities exerted considerable pressure while the German authorities showed a great deal of reluctance. Mies van der Rohe worked on the design of the Pavilion possibly since June 1928 but was given the green light for its construction only in February 1929, with the additional aggravation that the final site selected by Mies implied additional costs because of the need to move a great deal of earth besides the arbitrary decision by the architect to use onyx facings.

The Pavilion, thus, ran out of budget and the project needed to become more limited. It is probable that these financial cuts were also related to the haste with which construction had to be carried out. All this necessitated the cancellation of the travertine outside wall of the south lateral façade and the posterior east and lateral north walls of the office block. The green marble was also cancelled on the north outside wall and the east outside wall, and was substituted by stucco which was painted in a clear and green colour respectively. Because of these facts, we adopted the solution of completing what in this case



III. 4

Barcelona,
the reconstructed
German Pavilion
in situ

appears a strictly budgetary problem. The decision related to the green marble was easy, since in this case only a prolongation of a module and facing were involved and no particular difficulties arose in discovering how the original was done to maintain the conceptual coherence of the outside wall of the statue pool.

In the case of the travertine wall the problem was more delicate. To complete this wall, in which the outside stucco facing must result in a deplorable effect, brought into question the treatment of the relationship between the different parts and its function as a wall not only of the main pool but also of the adjacent office block, with its north and east facing windows. The extant information on its original appearance and dimensions was sufficiently clear. What was more delicate was the interpretation of the continuity of the material and the relationship with the empty spaces. The solution we adopted was the one that, in our judgement, would solve the problem of treating the windows in both walls with respect to the materials and the general modelling in the project.

Materials

We cannot close this overview of the main problems posed by the Pavilion without mentioning the building materials. The choice of the travertine blocks was made by the three architects after visiting a large number of quarries in Tivoli. There is a type of blocks with strong marbling. A dramatic impact was selected for the walls. The travertine came from the same quarry as did that for the Coliseum. For the pavement and facings of the platform we selected a more compact and uniform Tivoli travertine from the Sybilla quarry.

With regard to the green marble, we had to deal with the mistaken claim made by Genzmer in his project. The Tinos marble, a Greek marble, darker in colour and with broken stains mixing dark green, white and black in a large terrazo pattern, was not evident in the outside perimeter wall of the pool but in the wall adjoining the covered entryway. In contrast, there were many blank drawings of Alpine green marble, a green veined marble, which showed symmetrical groups of 2 or 4 tiles. This marble was quarried in the Aosta valley in the 1920's and continues to be quarried today in quarries, largely with difficult access. Most of the year they are covered by snow.

But the material posing the greatest difficulties throughout the reconstruction project was without doubt the «onyx doré» with which the central, free standing wall in the interior of the main covered space was faced. This material was sought after in Morocco and Algeria without success. We were told that quarries existed in the 1920's

which today were no longer used, and in Egypt, where we went personally to find the impossibility of obtaining blocks lying far below the surface in a completely inaccessible site. Enquiries were made in Israel, Pakistan, Mexico and Brazil, all in vain. In the end, when we had almost given up on ever finding the onyx, Fernando Ramos and the marble producer Jordi Marquès travelled to Algeria, to Bou An Hafia, a few kilometers away from Muskara. The trip was worthy of an adventure story, with many apparently unsolvable problems to be conquered. In front of an abandoned quarry they came across a block of onyx which was perfect as to size and quality. The problem now was to convince the quarry owners to again open up the quarry and cut the blocks for us. After complicated negotiations we managed to buy the material and transport the block to Spain, where it was cut for the central wall. This was practically the last effort needed for the completion of the project. The impressive effect of seeing the colossal blocks that measure 2.35 x 1.55 meters in situ gave the last touch to the high quality of the materials that were used.

As far as the other materials are concerned, it must be stated that great efforts were engaged to ensure that they were of sufficient quality, size and characteristics to correspond to those that were used in the original construction. Metallic finishings with a high content of chrome offer a longer lasting solution than did the traditional chrome, and allow a better protection from the humid Barcelona climate. The transparent bottle green, grey and white windows provide a strong colour impact which is complemented by the furniture, the black floor covering and the red velvet curtain which are to be found in the heart of the central space and provoke a hard and tensile colouration, with pure geometric and straight lines contrasted only by the rough texture of the bronze of Kolbe's statue. The latter, a present by the German government to the Reconstruction Foundation, is a cast bronze replica of the original that is kept in East Berlin in the Rathaus gardens.

Security and surroundings

The conservation and security of the building pose the same problems today as they did in the past. Mies van der Rohe built a conceptual ideal, strongly aligned with a continuous flowing of interior and exterior space without any exact limits. The exterior was a problem free space to allow free access by visitors, while the interior, with its furniture and delicate finishings, posed obvious problems for its safety.

The solution adopted in the past was the same that we use today. Mies designed two special doors which could be

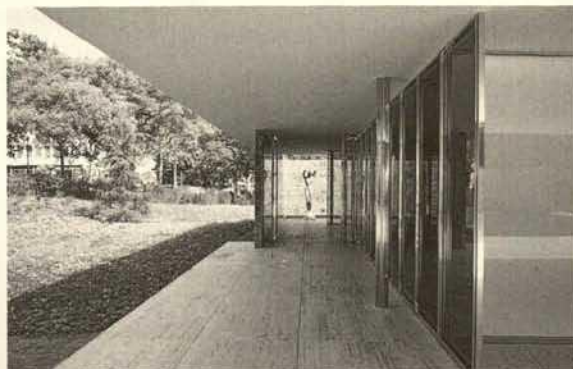
placed on site or removed as the occasion warranted. They were similar in construction as the metal windows, with transparent glass panels. The details of their design are available to us today and have been found erroneously filed with other Mies van der Rohe projects in the New York Museum of Modern Art Archives. The technical solution does not pose any particular problems if it is taken into account that the purpose of the doors is to keep intruders away.

In any case, besides the doors there will be other security measures for controlling all entrances into the building. In the first place there will be, within the surrounding bushes of the garden, a metal wall which will run from the top of the hill to the north and south borders so that the open space around the building will be limited by this wall, the wall of the Victoria Eugenia Palace and the Pavilion itself. Besides these visual measures, there will also be a television camera system providing full view of anyone approaching the building by the different access ways. A buried alarm system will be activated by anyone approaching the building through the garden, while photoelectric cells provide a barrier in front of the building. All these measures must not, however, enclose the building, which is designed for circulation, and free access. Therefore, the security measures must not be more than aids to the personal controls by guards who, at any moment, will be informed of any anomalies occurring anywhere in the building and grounds.

Besides these security measures the Pavilion must have a physical environment defining its placement as the building that encloses the bottom of the great esplanade. The unfortunate Olympic Pavilion is currently the counterpoint to the overall placement of the German Pavilion. A wider restoration of the combined spaces forming the site on which the German Pavilion is constructed is required, as is demolition of the ugly concrete pavilion built in the 1960's.

The final aim must be a visual opening of the great esplanade with its coloured fountain by the German Pavilion designed by Mies van der Rohe, and the reconstruction of the file of high Ionic stone columns enclosing the space of the great esplanade to the east and west and providing a view of the two palaces behind the esplanade – that of the city of Barcelona, which still exists at the eastern end, and that of the German Pavilion by Mies van der Rohe toward the setting sun.

A green coppice of trees grows at the same site as in 1929 and other newly planted ones, together with a green carpet of ivy in the style of gardening made popular by Rubió i Tudurí and Forestier. This will be the perfect background for the strict and sober lines and bright gleam of the materials and reflections, which will be visible from any site on Montjuïc mountain.



III. 4

Barcelona,
the reconstructed
German Pavilion,
view towards the
inner courtyard