

## **Villa E-1027 Roquebrune digitalised**

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### **The Design of E-1027: Maison en bord de Mer**

The house was built for a 'person who likes work, sports, and likes receiving friends'. With these words Eileen Gray described the purpose of the Maison en Bord de Mer in a special edition of *Architecture Vivante*.<sup>1</sup> She spent the building period 1926 to 1929 almost exclusively at the site in Roquebrune on the French Côte d'Azur. She designed everything herself, from the architecture through the furniture to the smallest details of the interior decoration. The small Villa contains the *salle*, two bedrooms, a servant's room and utility rooms. The *salle* was partitioned with screen furniture serving as a living room, dining area, wardrobe, shower or as an alcove for guests if required. The E-1027 was a laboratory for experiments. Gray herself appraised the Maison en Bord de Mer: it 'should not be considered a perfect house where all problems are resolved. It is only an attempt, a moment in a more general research'.

The outstanding quality of the design lies mainly in the close interweaving of the interior and exterior, which were conceived together right from the start. It is the combination of architectural envelope, furniture and the details of the furnishing that provides a strong impression of space.

Eileen Gray learned the métier of architecture in the mid-1920s by herself. Until that time, she had no experience at all of building and so drew upon the support of her friend Jean Badovici, editor of *Architecture Vivante*. This explains the rather strange sounding name, E-1027: E for E(ileen), 10 for Jean (J is the tenth letter in the alphabet), 2 for B(adovici) and 7 for G(ray). Badovici is considered to be the co-designer of E-1027. Nowadays it is difficult to find out how much Badovici took part in the design process of the house. However, his role may have been mostly that of critic and advisor.

### **Virtual architecture**

Virtual architecture enables us not only to make advanced designs for the future, it also offers new ways of understanding our architectural heritage. Buildings that have been demolished long ago can now be digitally reconstructed and visualised. The virtual reconstruction of Eileen Gray's building demonstrates what possibilities a digital rendering of a demolished building can offer. This chapter sets out to clarify the consequences of such a virtual reconstruction.

A peculiarity and a decisive aspect of a virtual reconstruction of a historic building is that work is being done independently from the object itself. A lost, no longer existing situation can be virtually recreated. In this way, a real-life reconstruction can be prepared up to the smallest details. The computer gives us a precise and comprehensive image of the building. Its design can always and everywhere be virtually experienced. The ETH-Zurich<sup>2</sup> in cooperation with the Delft University of Technology<sup>3</sup> were among the first research institutes to introduce the virtual reconstruction of historic buildings. With the help of a computer, Eileen Gray's Maison en Bord de Mer was virtually re-created.

### **The fate of Eileen Gray's Villa E-1027**

Like so many architectural monuments, fate was against the Villa en bord de mer. After moving to another house Eileen Gray built a few kilometres away, Badovici moved into the house E-1027 in the mid-1930s. His friend Le Corbusier often stayed in the house, and during some of his visits in 1938 and 1939 he painted large murals on what he considered not the best walls of the villa, but on the contrary, 'they burst out from dull sad walls "where nothing is happening". The result - meaningful paintings on indifferent walls and all the fine walls preserved.'<sup>4</sup>

After Badovici's death in the late 1950s the house was bought by a Swiss, and changed ownership again about twenty years later. The new owner had very limited interest in maintaining the building. In 1991 he put a unique set of twenty-eight pieces of furniture up for auction at Sotheby's in Monaco. We immediately initiated a campaign to have the sale cancelled, or at least to preserve the set as an entity. DOCOMOMO International became alarmed by the situation a few days before the sale was scheduled. In just three days an international campaign which they launched was unable to prevent the furniture being dispersed.<sup>5</sup> We had no choice but to document the interior taking measurements and photographs. The story of this villa became even

more grotesque when, in August 1996, the owner was murdered in the house. He must have lived in very strange and sad circumstances in the house for his last days. Today only parts of the building and its furnishings remain, albeit in very poor condition. The future of the house is now more uncertain than ever.

### **Digital model**

The composition of a digital model of the house required several steps. First, all salvaged parts of the building that were still available, and relevant information on the building, were collected, arranged and processed. The actual reconstruction consisted of joining these individual elements together into a three-dimensional, archeological puzzle. The first stage was to re-build, step by step each of the available parts and to insert them into a digital model. Components that were insufficiently documented were compared with the adjoining parts and completed on this basis. It was to prove an advantage that the virtual reconstruction did not have to follow the same process as real-life construction. During the second stage the quality of every surface area had to be examined and defined. The final result is an extremely extensive, detailed model of the house and its furnishings.

A computer program for visualising enables viewers to, as it were, enter the digital model and move through it interactively. Pre-programmed animations and readily available bird's-eye views serve as orientation. Yet, at the same time, the model serves as a data bank. This means that when a certain surface area of the digital model is being 'clicked', background information on the chosen part of the house, or its furnishings, will appear. In this way, original photographs, maps, sketches and descriptions are easily accessible. Finally, the virtual model also allows for an analytical representation of the object. The building's spatial composition as well as, for instance, the construction process can be studied by specifically highlighting certain elements of the building that are isolated in one of the layers of the model, or by compositing specific overlays. The interactive circuit of the virtual model not only provides an impression of a real home, but also the didactic and analytical possibilities of such a representation are highly versatile.

### **Artifact versus fiction**

When results of the effort are being interpreted, it must be kept clearly in mind that digital work is always an abstraction to represent the real materials involved. The question remains to what extent an abstraction approaches reality. But what exactly *is* the relationship between fiction and the artifact? On the one hand the fictitious object serves as a tool, but on the other hand it is equally a form of documentation. The computer helps us to compose the individual parts into a complete whole as well as rendering the project totally accessible. In this way the method replaces and completes for documentary purposes, the original reality. Certain rules must be followed in order to distinguish the virtual model from the building itself, otherwise there might be a risk that the significance and relevance of the original are taken over by the virtual or, in the worst scenario, replaced by it. Thus, the virtual transformation must always make its reference to the original manifest. The public must be allowed to form their own impressions. In the case of Eileen Gray's villa this has been made possible by including period photographs, descriptions by the architect and indications to distinguish hypothetical parts of the reconstruction, all of which are included in the computer model. Should such indications and references be omitted, the original would, in effect, be betrayed by its virtual equivalent.

### **A preservationist's dilemma**

The potential of virtual reality has consequences for our perceptions of conservation. Taking the case of the Maison en Bord de Mer as an example, there are two very different causes which explain why there is nothing remaining of the original character of the building. At a stroke the original furniture was removed and other fittings destroyed. Moreover, the empty rooms were later dramatically altered by the Le Corbusier murals which were added to the interior without the agreement of the original architect. If the only concern had been the conservation of the house, the National Trust would have been able to reach an easy decision. It is quite clear that the Eileen Gray interiors and Le Corbusier's murals are not compatible. Moreover no authentic work of art by Eileen Gray had been preserved, either in the house or elsewhere. These might be seen as sufficient cause to remove the Le Corbusier paintings and reconstruct the original interiors. However, Le Corbusier's reputation would have made this course of action very risky, if

not impossible under French law, due to the classification as a 'Monument Historique'. In addition the setting of these paintings provides interesting insights into his personality, reason enough to preserve the paintings in their locations. A way out of this dilemma can be provided by virtual technologies. The National Trust can search for solutions to restore Eileen Gray's house without removing these traces of its history. At the same time, the original stat can be re-created with the help of the computer.

### **Virtual Disneyland**

This example demonstrates that virtual reality provides new options in architectural conservation. The now widely-held view that a historic building should display the various stages of its history and not one random moment in time is reinforced by this technology. The virtual model provides the opportunity to show one or more stages in the history of a building. This task of the National Trust will not, however, be made any easier. Their aim should be to make distinct and important elements which represent the various stages of a building's existence perceptible, and to fulfill this task creatively. Simultaneously assurance is required that virtual reconstructions and presentations do justice to the building and meet scientific criteria. Without such assurance there is the risk that a virtual Disneyland is presented in place of the original reality. Could virtual reality provide the alibi for demolition or disfigurement of an historical building? For example, before the restoration of an archeological excavation, a virtual model could be constructed and certified as an adequate record; this possibility exists, and such incidents do occur. The National Trust has the responsibility of preventing this from happening.

The question whether only second-hand documentations will do adequate justice to the artefact in every respect is certainly justified and must be raised. The answer to the problem can only be given by the object itself and will never depend upon the nature of a visual rendering, however produced. Virtual rendering can contribute to the forming of an opinion. The sense, and nonsense, of an intervention can be examined and debated without affecting the building in question. For each individual object the best possible solution can be determined. It is to be expected that virtual reality will increase understanding, interest and sensitivity with respect to the artefact. With this in mind we return to the issue mentioned above, that the virtual rendering of a historic building allows for a differentiated approach in professional terms. At the same time, a lively representation by a virtual model will advance the cause of opening up our architectural heritage to wider spectrum of society.

### **Notes and references**

- 1 Eileen Gray and Jean Badovici, 'E-1027; Maison en Bord de Mer' in *Architecture Vivante*, Paris 11-1929.
- 2 Professorship for architecture and CAAD, Prof. Dr. Gerhard Schmitt and the Institute for the Preservation of Historical Monuments and Sites, Prof. Dr. Georg Mörsch.
- 3 Professorship for Technical Design and Computer Science, Prof. Dr. Ir. Sevil Sariyildiz.
- 4 'Le Corbusier' Oeuvre Complète 1938-1946 (W.Boesinger, Zürich 1946).
- 5 See *DOCCOMO International Newsletter* No 6, November 1991, pp. 9-10.