MATTI SUURONEN'S 'FUTURO' - PROTOTYPE 1968 AFTER 50 YEARS

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ABSTRACT: The Futuro house was designed in 1968 by the Finnish architect Matti Suuronen. Its prototype, *Futuro no. 000*, currently in the collection of the Museum Boijmans van Beuningen in Rotterdam, underwent a major conservation treatment at the time of its acquisition a decade ago. The construction, the architectural details and the surface of fiberglass reinforced polyester (GRP) elements had suffered from transport and handling during the many assemblies on various sites, indoors and outdoors, over the previous decades. Before starting the restoration a research project was set-up to investigate the options for conservation. A clear vision about the best ways to exhibit the prototype was developed in order to avoid further deterioration. The decision to only exhibit the Futuro within the museum was essential for its conservation treatment. In contrast with the original function of the mass-produced Futuro houses as summer houses or ski-huts, it proves to be the best option to preserve the unique prototype for the future.

KEYWORDS: *glass reinforced polyester (GRP), outdoor sculpture, Futuro house, prototype, modern architecture*

INTRODUCTION: In 1968 architect Matti Suuronen (1933 - 2013) presented his newly designed Futuro, a fully equipped summerhouse/ski-hut, as an innovative construction based on a modular system that was easy to assemble and position in the Finnish landscape.[1] The spectacular design went into production worldwide with options for a personal choice of color, chairs, bedrooms and kitchen.[2]The UFO-like oval shape consists of a shell of 16 modular, rounded elements of double-skinned GRP sandwich panels. In the lower half are eight panels, one of which includes the entrance door and stairs, while the top half has eight panels with two oval windows each.[3]

The prototype is *Futuro* number 000. It was produced in a light blue color for the outside and all the GRP parts inside, where it was combined with purple for the walls in the open central living space and red for the kitchen and bedroom cupboards, the cushioning on the chairs and beds, and the carpeting [FIGURES 01 - 03]. After years of travel to sales presentations, art exhibitions and periods of semi-permanent private use it was purchased by the Museum Boijmans Van Beuningen in Rotterdam in 2007. Research into the Prototype was undertaken, followed by a major conservation intervention of the house and its interior.[4]

FUTURO PROTOTYPE: STATE AND STATUS

Investigations of the Futuro were started that would establish an understanding of the both the materials and the status (cultural value) of the building. First, an insight was needed into the current condition of all single elements, missing parts, the general condition of the whole assembled piece and the originality of some materials, such as the internal red textiles and purple color on the wall. Secondly, a deliberation took place on the special meaning of the prototype Futuro. To what extend does the prototype differ in appearance, in construction details and in production technique from the later mass-produced Futuros and why? Both outcomes merged into a specific approach for the conservation treatment and the preservation of this Futuro prototype in the future.

SHORT HISTORY (1968 TO 2007)

The biography of the prototype was reconstructed through information from various sources.[5] Although a complete account of the exact whereabouts of the prototype during its first 40 years of existence cannot be made, there have been more than ten occasions of assembling and disassembling, and several periods when it was used for living in Finland in the first decades. After the 1996 exhibition in Vienna the prototype entered the collection of the Centraal

01 Futuro Prototype. Overview after conservation, 2011. © N. van Basten

02 Futuro Prototype. Interior view in after conservation, 2011. © N. van Basten

Museum, Utrecht where it was exhibited in the courtyard a few times and sent on loan occasionally. All the transportation, re-assemblies and exposure to the Finnish and Dutch climates had resulted in it being in poor condition by 2007 when it entered the collection of the Museum Boijmans Van Beuningen in Rotterdam. With the investigation into both the technical state of preservation and status (cultural value), of the *Futuro no. 000*, the museum underlined its importance to the world's cultural heritage and to the many Futuro houses globally.

MATERIAL CONDITION

The condition of all individual parts and the variety of types of damage were inventoried. The outer shell had obviously suffered the most, both from natural deterioration and from mechanical damage. The distinctive symptoms of deterioration caused by sunlight, rain, snow and moisture, extreme temperatures in summer and winter, large fluctuations in temperature between day and night are: chalking of the gelcoat, micro-cracks in the polyester and fading of color. Characteristics of mechanical impact are the large fractures, deformations, delamination of the sandwich layered shell construction and losses in the material. A range of phenomena can be ascribed to a combination of mechanical damage and weathering. Wear of the gelcoat surface together with micro-cracks and breaks in the surface allow moisture to enter into the GRP substructure, to cause mold growth and eventual delamination of the top layers of polyester. When penetrating deeper, water could reach the polyurethane foam layer, resulting in a loss of stiffness of the sandwich layers, and eventually, in more fractures on the polyester surface. This is just one example of the cause and effect of damage in the current condition of the prototype. On the other hand, the light blue GRP elements in the interior are in a very good condition. Here, no chalking or micro-cracks on the surface of the GRP are visible apart from minor mechanical damage. Old sales brochures show the fashionable interior with blue polyester elements combined with plain red cushioning and purple walls. The cushions for the beds and the chairs now have a floral design and date from the time when the Prototype was sent to the 1996 exhibition in Vienna. The red carpet had been replaced every few years.

To estimate the amount of time and the different types of work needed, experts in the field of outdoor GRP sculptures, of other Futuros and of GRP from both industry and conservation were consulted.[6] A substantial discussion on the future of the prototype addressed the question of the long-term preservation of the object against the wish to present it outdoors.

03 Futuro Prototype. View of the kitchen area after conservation, 2011. © N. van Basten

DECISION MAKING

Certain preconditions have to be feasible for the practical exhibition of an artwork or design object. With its robust presentation size of around 4,5m height, 8m width and approximate weight of 3.500 kg (its volume in its disassembled state requires three truckloads) the Futuro is not an easy object in a museum collection. A permanent space indoors is difficult to find, which then implies regular assembling and disassembling of the work and the risk of further damage. Placed outdoors, the GRP shell will continue to suffer from environmentally caused deterioration. This will require the application of a protective coating, either a sacrificial one with yearly maintenance (implying extra costs), or a permanent but irreversible coating, that changes the original look and smoothness of the work.[7]

The misconception of the Futuro being a moveable object probably originates from the spectacular photograph of the Swedish Army transporting their specially ordered Futuros by helicopter. Transport like this is hardly practical in a city like Rotterdam today, even disregarding costs and safety.[8] The assumption that the Futuro - designed as a modular system kit - was intended to be a real, mobile home that would sustain regular re-assembly has proved to be wrong, when one considers the worn state of the prototype and the architect's information on this topic.[9]

WEIGHING THE OPTIONS

The pros and cons of indoor or outdoor exhibition, and of a permanent or semi-permanent site were discussed in detail. If exhibited outdoors the prototype's shell would need a high-maintenance protection layer or irreversible recoating. Technically it is not possible to add a new gelcoat on top of the existing coat. The gelcoat functions as the first layer in a mold during fabrication.[10] The only way to add a further good coating would be to sand the original surface, and apply a 'DD lacquer', (a two-component polyurethane lacquer) by brush or spray. This is an irreversible intervention. In theory there is a choice between a transparent layer and a pigmented layer, but either will give the prototype a new surface and different appearance that clashes with the original production technique and aged look. As there is no guarantee that supports the industry's claim that these lacquers will not become yellow, the only alternative is a sacrificial wax coating to be reapplied after every cleaning, preferably twice a year.

However, if indoor presentation were to be chosen, the difficult issue about its original function and meaning will arise. In the discussion about whether the value of the Futuro lies in its being Art or Design it was argued that the prototype as such was at least unique.[11] In the meantime another aspect revealed itself. Under the dirty and chalky surface layer, the gelcoat had changed in color, shifting due to the influence of light into a rather patchy pattern of light blue, greenish beige and grey-purple color. This particular phenomenon, however puzzling, was regarded as another reason to rule out options of recoating the surface, and finally led to the choice of indoor exhibition as it was the only way to combine preservation with a minimal intervention that respects the surface of the original outer shell.

An additional advantage of internal exhibition is the possibility of open or supervised access to the fascinating interior for the public. When inside, there are no climatic constraints, as long as the work is protected from direct influences, such as rain, frost, sun and temperature fluctuations. The decision for indoor exhibition enabled a more restrained conservation treatment as there was no need for watertight connections between the shell elements, or to protect the Futuro against mice, birds, and insect infestations. Furthermore, exhibiting indoors would also prevent damage from graffiti or vandalism.

TREATMENT

To start the treatment all elements were transported to the Poly- Products company. Tests for cleaning, repairs, filling and retouching were made, together with further research into the technical properties and construction of the prototype. It was decided to re-assemble the prototype to learn, step by step, about the stages of assembly, to register them systematically, and at the same time, to locate all the damage and peculiarities that needed attention.

The elaboration of the conservation concept was developed during the course of testing for treatment. Due to the enormous size of the object however it proved difficult to predict the effect and the actual visual result of the cleaning, polishing and repair on the ca. 20x20 cm test areas. How to deal with every piece of the ca. 160 elements of the Futuro, ranging from the huge shell elements to the smallest cupboard door?[12]

OUTSIDE SHELL

After the re-assembly it was possible to review the prototype as a whole and put into context the disturbing impact of all the areas of damage at the ridges and edges of panels. The worn and dull chalky surface layer with patches of old repairs, graffiti, and the dusty, oval shaped windows - some missing their black rubber lining - gave an overall shabby look.

The partial delamination of the insulation foam from the inner and outer polyester layers of the shell elements (as a result of handling stress and storage under tension in different positions) had weakened the elements and possibly

caused more fractures in the polyester. The door and stairs also showed delamination, which weakened the stairs.

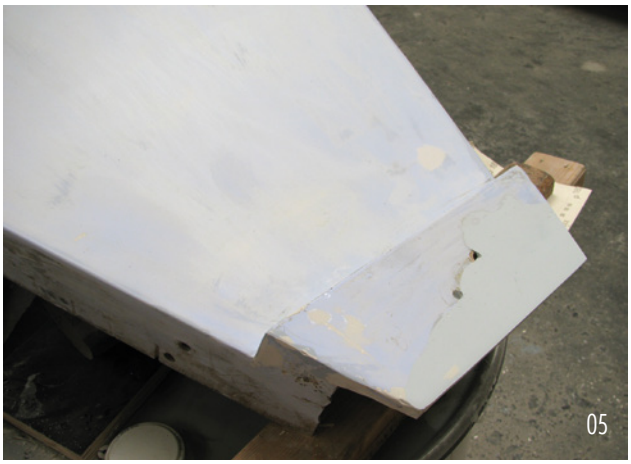
The poor appearance differed clearly from early photographs where the prototype would have been bright light-blue, similar to the interior elements that had kept their glossier surfaces and full color.

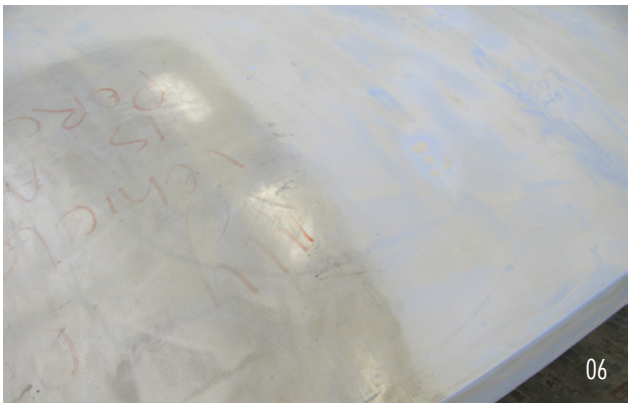
CLEANING THE GELCOAT

During the cleaning of the outer shell a remarkable shift in colors showed up [FIGURE 04, FIGURE 05]. The gelcoat colors are not monochrome blue anymore but seem to have faded partially due to sunlight exposure. Another possible reason for the patchy appearance could lie in the working method in the production. It is possible that the colors for the gelcoat had not been mixed well in the first place. In some areas large brushstrokes deriving from the application of the gelcoat mixture on the mold could be seen. The overall multicolored shades, which varied from blue to purplish beige and green grey, were not visible on the few remaining early photographs. How this process started is still the object of research [FIGURE 06, FIGURE 07].

THE INTERIOR

The blue polyester interior was in much better condition than the exterior although a similar but less pronounced shifting of the blue color could be detected there as well [FIGURE 08]. Some polyester interior elements were still fully blue, such as the bathroom where there has been very little exposure to direct sunlight [FIGURE 09]. Patches of dark retouched areas disturbed the purple walls and the ridges covering the bolted connections between the shell elements. The surface structure, typical of the GRP 'lay-up' method, was painted with a matt acrylic house paint. It was decided to completely repaint the inner walls and all purple elements rather than painstakingly try to remove the patches as there was no aesthetic or artistic value to this painted surface other than its color.[13] The cooperation with Poly Products B.V. provided the know-how for the repair and treatment of aged GRP objects. The conservation treatment was carried out by Poly Products employees in their factory with a lifting hoist, which enabled easier handling during assembly. The treatment consisted in a lot of cleaning and light polishing, filling larger lacunae





04 Detail of one of the shell elements; halfway the surface cleaning treatment. © L. Beerkens

05 Detail of the same element during the cleaning process. © L. Beerkens

06 Detail of the damaged top end of one of the shell elements. © L. Beerkens

07 Detail of the same element in figure 06 after repair of the loss. © L. Beerkens

08 Two fiberglass reinforced polyester elements from the seats in the living room. © L. Beerkens

09 Detail with a small shelf from the interior, still bright blue, in front of the faded blue shell element. © L. Beerkens

and old drill holes with the appropriate filler materials used in the polyester industry and mixed in matching colors [FIGURE 06, FIGURE 07]. This made it possible to execute a good and robust restoration within a reasonable time and budget. The door and stair element were cut open to add extra plywood and polyester reinforcement, and then closed-up again [FIGURE 10]. To preserve the prototype by refraining from future outdoor exhibition the treatment could be limited to cleaning, local repairs, small reconstructions and strengthening constructional components. The assembly in 2011 showed a good final result from the conservation treatment: the repetitive black lines of the oval windows and the smooth bluish polyester surface re-emphasize its character. The Futuro prototype has regained its strong features of futuristic design and lifestyle, and was welcomed back by its architect Matti Suuronen at the opening of the exhibition in the museum in May 2011.

MUSEOLOGICAL ACTIVITIES

During a two-year period the condition and status of the prototype Futuro 000 was investigated.

Taking into account its age and original appearance the prototype was treated on the basis of obtained results, and after consideration of the various conservation options for its optimal presentation. As the GRP outer shell is now over 50 years old, the prototype has reached the projected age where deterioration of the material becomes significant. Due to the poor condition of the worn polyester surface and deformations in the shells that hinder a watertight assembly of the outer shells, a continuous outdoor location is problematic. The Museum Boijmans Van Beuningen chose a conservation approach that avoided irreversible additions and made the interior accessible to the public. Outdoor exposure would have required a total repair including recoating the outer shell surface to enable it to be located in its original outdoor setting. With the completed conservation treatment, the Museum Boijmans Van Beuningen reached the goal of preserving the prototype for a longer period than its expected lifespan estimated by the production companies. Maintenance is manageable as harsh outdoor climatic influences are excluded.

At the end of the 2011 exhibition the Futuro had to be dismantled once more to be removed from the museum. A year later it was re-assembled as part of the Sarkis Exhibition, 'Ballads' in the spectacularly large space of the 'Onderzeebootloods', a former submarine building in Rotterdam harbor. Outside a non-museum environment even permanent guards could not prevent the public from leaving small marks and graffiti on the interior. After this exhibition the prototype was dismantled again, and since then the Futuro has been in storage, awaiting the opportunity to be visible again, after the major renovation of the Museum Boijmans Van Beuningen.

Parallel to this, in 2012 the very first of the mass- produced Futuros, house no. 001 was completely restored after being acquired by the WeeGee Exhibition Centre in Espoo, Finland.[14] Futuro 001 is placed outdoors, on the Centre's courtyard and is open to the public during summer.

The approach for this Futuro differed from the treatment applied to the prototype. Futuro 001, with its yellow exterior and red and yellow interior, has received an entirely new coating to the outer shell that recreates the bright yellow gloss finish which also protects it from the Finnish climate. Research into construction details of the Futuro 001 and its production technique has enabled a comparison with the prototype, and brings to light differences in construction and execution.[15] The Futuro 001 is protected by a maintenance plan that includes annual cleaning and checks.

10 Futuro Prototype. View of the entrance after conservation, 2011. © N. van Basten

CONCLUSION

In retrospect, a decade after the 2011 conservation intervention, the main argument in the decision making process still stands. The optimal strategy has been to both apply minimal conservation interventions to the existing materials and a few local constructional treatments and repairs. This approach however, requires the prototype to be kept and exhibited inside the Boijmans Van Beuningen Museum.

The minimal interventions respect the original handicraft production and keep the specific qualities of the making of the prototype visible. For the load-bearing construction to retain its strength and to enable a complete and functional assemblage of all building elements, a more intrusive treatment to a limited number of elements has been inevitable. In this way the twofold conservation intervention highlights the importance of the Futuro 000 as being the prototype of many following Futuro houses.

ACKNOWLEDGEMENTS

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During the entire project of the conservation of the Prototype many have been involved. Special thanks for this current, revised article to Christel van Hees, head of conservation and restoration at the Museum Boijmans van Beuningen. See also the acknowledgements in the initial article.

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ENDNOTES

1 See: Marko Home, Mika Taanila (eds.) FUTURO, Tomorrow's House from Yesterday, Helsinki 2002. This 192 pages publication plus DVD entails the key informa- tion on development, production, spreading world-wide of the FUTURO, with contemporary films and footage by many authors, including promotion films and a filmed interview with the architect.

2 Pekka Granqvist, contact person for Matti Suuronen, informed us on 18-5-2011 about an estimate of some 1000 FUTURO ´s worldwide and 23 licences to other countries and continents. The client could order from the modular system the amount of chairs, bedrooms and beds, and select any combination of colors for the external and internal polyester and upholstery.

3 See for a technical study: Frederic Rasier, Het Futurohuis, Universiy Gent, Belgium 2002,unpublished thesis at the Faculty of applied Sciences, Architecture & Urban development, on the technical aspects of the design, the build-up and dismantling of the house, the variety in design between the Finland produced FUTURO's and houses produced under license in other countries and continents.

4 See: http://www.boijmans.nl and https://www.boijmans.nl/collectie/kunstwerken/131959/futuro accessed 20 May, 2022. The museum Boijmans van Beuningen website contains various films on the restoration, on the buildup and references to relevant literature and links.

5 Pekka Granqvist stated that the Prototype has been assembled in Finland in Kalpalinna, Keitele and Kotka, before traveling to Vienna exhibition in 1996.

6 The restoration project of the Mobile Home for Kröller- Müller generated a lot of technical insight in the micro- climate inside small houses and objects in the outdoor. See: S. Stigter. L. Beerkens, H. Schellen, S. Kuperholc. Outdoor Polychrome Sculpture in Transit: Joep van Lieshouts' Mobile Home for Kröller Müller. Proceedings Icom CC Triennial Meeting New Delhi, India September 2008: Working group Modern Materials and Contemporary Art. p. 236-243. On protection of fiberglass reinforced polyester from outdoor climate influences see: L. Beerkens, S. Stigter, T.van Oosten, H. van Keulen: Go with the flow, Conservation of a floating sculpture from 1961 made out of glass fibre reinforced polyester resin, Victoria & Albert Museum Londen Symposium: Plastics, looking at the future, learning from the past, Mai 2007. Archetype Books 2008.

7 See for the research into the technique and conservation issues on FUTURO no 13: Tim Bechthold "Houston - We have a problem; when flying saucers become brittle" in Plastics. Looking at the Future and learning from the Past, Conference Papers, V&A London, 2008, pp. 28-35.

8 Home, Taanila (2002), op. cit. page 30. Photo by: Lehtikuva/ Pressens Bild.

9 Pekka Granqvist and Matti Suuronen, both present at the opening of the 2011 exhibition of the Prototype in the museum kindly explicated to us that the modular design together with the four legs first of all enabled placing the house in almost any landscape without the need of a flat platform. As the house was to be connected to a generator for electricity and heating and also needed water supply it is hardly conceivable to have it moving around as a real mobile home.

10 The other production method, which can be found on the inside of the shell elements is the so called 'hand lay up' technique. This results in a rougher surface with the internal structure of the fiberglass still visible.

11 For more insight in the current discussion in conservation on original, artist proof, replica, series produced etc. Tate organized the meeting Inherent Vice and Vice: The Replica and its Implications in Modern Sculpture Workshop, in October 2007, see: Tate Papers 2007 https://www.tate.org.uk/research/tate-papers/08

12 Information kindly provided by Nikki Van Basten Conservator of Modern Art, who registered the complete inventory of all elements of the Prototype in 2011.

13 Information from an employee of the production firm who stated that the purple walls had been overpainted in preparation of the Prototype for the 1996 exhibition in Vienna.

14 See: www.weegee.fi for more information by Marko Home. Both the Prototype and Futuro 001 were published in a sales brochure in 1968, see: Home, Taanila (2002), page 17

15 Prior to its restoration Futuro 001 was examined on its need for conservation. See: Anna-Maija Kuitunen, Futuro no 001, documentation and evaluation of preservation needs, Bachelors Thesis, Conservation Historical Interiors Metropolia University of Applied Sciences Vantaa Finland, 2010.

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Prototype fg 2000 Building System used as prefab-upper floor, Altenstadt/Hessen, firm fg design, Wolfgang Feierbach, FRG 1968.
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