



LECTURE 015 MATTI SUURONEN'S 'FUTURO' - PROTOTYPE, 1968 BACK IN BUSINESS IN THE 21TH CENTURY

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ABSTRACT

The prototype of the *Futuro*, designed in 1968 as a 'ski-hut' by the Finnish architect Matti Suuronen, recently underwent a major conservation treatment. The construction had suffered from transport and handling during the many assemblies on various sites and periods of storage in the past. The gelcoat surface of the moulded cast fiberglass reinforced polyester elements that form the outside shell of the house, had deteriorated due to years of exposure to the outdoor climate both in Finland and in the Netherlands. To enable future exhibition of the Prototype the current owner Museum Boijmans van Beuningen started to research the options for conservation as the *Futuro* urgently needed cleaning and repair. A clear vision about appropriate ways of exhibition had to be developed to avoid further progress of deterioration and new damage, also considering the amount of separate parts in the interior and the size and weight of the outer shell elements. Essential for the conservation treatment was the decision to present the *Futuro* from now on only indoors. Although this is in contrast with the original function of the series produced Futuro-houses as a summerhouse or ski-hut, it gives this unique Prototype the best chance of being preserved for the future.

KEYWORDS

Fiberglass reinforced polyester (GRP), Outdoor Sculpture, FUTURO-house, Prototype, Modern Architecture

INTRODUCTION

In 1968 architect Matti Suuronen (*1933) presented his newly designed *Futuro*, a fully equipped summerhouse / 'ski-hut' with good insulation properties, a modular system, easy to assemble and position in the Finnish landscape.¹ The spectacular design went into production and both in Finland and worldwide *Futuro*'s were produced under license, variable in colour, upholstery, number of seats and of bedrooms.² The construction was innovative as well. The UFO-like oval shape exists in a standard outside shell with 16 rounded elements, produced in moulds; double sided fiberglass reinforced polyester sandwich plate, filled with polyurethane foam, eight elements for the lower half, one with an entrance door with stairs, and eight top elements with windows to all rooms.³

The Prototype is the *Futuro* number 000. It was produced in a light blue colour for the outside and all the fiberglass reinforced polyester 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 (see Figure 1 - 3). After years of travel to sale presentations, art exhibitions and periods of semi-permanent private use it was recently purchased by the Museum Boijmans van Beuningen in Rotterdam, the Netherlands, in 2007. Research into the Prototype was undertaken, followed by a major conservation treatment of the house and its interior.⁴

FUTURO PROTOTYPE: STATE AND STATUS

To reach a good final result in the material sense, and at the same time enhance the icon-status of the *Futuro*, examinations were started. Firstly an insight was needed into the current condition of all single elements, in missing parts, in the general condition of the whole assembled piece and the originality of some materials, such as the red textile in the interior and the purple colour on the wall. Secondly a deliberation took place on the special meaning of this *Futuro* being the Prototype. To what extent does the Prototype differ in looks, in construction details and in the production technique from the later series produced *Futuro*'s 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 40 years of



Figure 1
Futuro Prototype
 Overview 2011 after conservation
 Photo: Nikki van Basten
 See colour plate, p. 184



Figure 2
Futuro Prototype
 Interior view in 2011 after conservation
 Photo: Nikki van Basten

existence cannot be made, there have been more than ten moments of assembling and disassembling and several periods of years during which 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 Museum Utrecht in the Netherlands, where it has been presented at the courtyard for a few times and was sent on loan occasionally. All the handling taking place at each transport and assemblage as well as the periods of exposure to the Finnish and Dutch outdoor climate throughout the year had resulted in the apparent poor condition in 2007, when it entered the collection of Museum Boijmans Van Beuningen. With the investigation into both the state and status of the *Futuro* 000, the museum underlined its importance to the world cultural heritage and to the many *Futuro* houses worldwide.

MATERIAL CONDITION

The condition of all singular parts and a variety of damages were inventoried. The outer shell elements had obviously suffered the most, both from natural deterioration as from mechanical

damage. 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: the chalking of the gelcoat, the building of micro cracks in the polyester and the fading of the colour. Characteristics of mechanical impact are the large breaks, deformations, delamination of the sandwich layered shell construction and losses and lacunas in the material. A range of phenomena examined 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 will allow moisture to enter into the fiberglass substructure, causing mould growth and eventually delamination of the top layers of the polyester. When penetrating deeper, water could reach the polyurethane foam layer and wear it down, resulting in the loss of stiffness of the sandwich layers, and eventually in more breaks in the polyester surface. This is just one example of the cause and effect of damages in the current condition of the Prototype. On the other hand the light blue coloured GRP elements in the interior are in a very good condition. Here no



Figure 3
Futuro Prototype
 View of the kitchen area in 2011 after conservation
 Photo: Nikki van Basten

chalking or building of micro cracks in the surface of the GRP elements are apparent, apart from just a few mechanical damages. Old sales brochures show the fashionable interior with the blue polyester elements combined with a 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 carpeting is always exchanged after a few years for new carpet.

To estimate the amount of time and the different types of work needed, experts in the field of outdoor GRP sculptures, of other *Futuro*'s and of fiberglass reinforced polyester from both industry and conservation were consulted.⁶ A substantiated discussion on the future of the Prototype addressed the question if preserving the object on the long term prevailed over the wish to present it in situ, i.e. outdoors.

DECISION MAKING

For the practical museum usage of an artwork or design object the preconditions have to be feasible. With its robust presentation

size of around 4,5m height, 8m width and approximate weight of 3.500 kg (its volume in disassembled state equals 3 truckloads) the *Futuro* is not an easy piece in a museum collection. Presenting the work either indoors or outdoors both have limitations. A permanent space indoors is difficult to find; this implies a regular assembling and disassembling of the work, with the risk of further damage. Placed outdoors the GRP shell will continue to suffer from the environmental climate and material deterioration will progress. This necessitates the application of a protective coating, either a sacrificial one with a yearly maintenance causing extra costs, or a permanent but irreversible coating, changing the original look and feel of the work.⁷

The misconception of the *Futuro* being a moveable object originates probably from the spectacular photograph of the Swedish Army, transporting their specially ordered *Futuro*'s in an assembled state by helicopter. Transport like this is hardly practical in a city like Rotterdam today, even with disregard of costs and safety regulations.⁸ The assumption that the *Futuro* - being designed as modular system kit- was intended to be a real mobile home and therefore sustains a regular build up and disassembling, is proved to be wrong considering the worn state of the Prototype and the architects information on this topic.⁹

WEIGHING THE OPTIONS

The pros and cons of exhibition indoors or outdoors, and of a permanent or semi-permanent site were discussed in extend. As stated 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 one. The gelcoat functions as a first layer in a mould, that is how the elements are produced and how they get their smooth surface.¹⁰ The only way to technically perform a good coating would be to apply, after sanding the original surface, a 'DD lacquer', a two component polyurethane lacquer by brush or by air-spray. This is an irreversible intervention. In theory there is a choice between a transparent layer and a pigmented layer, either way giving the Prototype a (too) new surface and a different look, clashing with the original production technique and the currently aged look. As there is no guarantee for the industry's claim that these lacquers will not yellow, the alternative is a sacrificial wax coating that needs to be reapplied after every cleaning, preferably twice a year.

However if indoor presentation would be chosen, the difficult issue about its original function and meaning will arise. In the discussion about whether the *Futuro* is Art or design it was argued that the Prototype was at least unique from the ones in series produced.¹¹ In the meantime another aspect revealed itself. Under the dirty and chalky surface layer, the gelcoat had changed in colour, shifting due to the influence of light into a rather patchy pattern of light blue, greenish beige and grey-purple colour. This particular phenomenon, however puzzling, was regarded as another reason to rule out options of recoating the surface. This finally lead to the preference for an indoor exhibition

from now on, as it was the only way to combine preservation with a minimal intervention respecting the original outer shell surface.

Additional advantage is the possibility of open or supervised access of the fascinating interior to the public. In fact, there is no restricted museum climate needed, as long as the work is protected from direct climate influences, such as rain, frost, sun and temperature fluctuations. The positive decision for indoor exhibition enabled a more restrained conservation treatment as there was no need for watertight connections between the shell elements, to protect against mice, birds, insect infestations. Furthermore, exhibiting indoor would also solve the problem of damages such as graffiti or vandalism.

TREATMENT

To start the treatment all elements were transported to the Poly-Products company plant. Tests for the cleaning, repair of losses, filling and retouching were made, together with further research into the technical and constructive properties of the Prototype. It was decided to firstly build up the Prototype to learn step by step about the stages in the assembly, to register them systematically and at the same time locate all the damages and peculiarities that needed attention.

The elaboration of the conservation concept ran parallel to the tests for treatment in order to immediately implement first results into the final treatment proposal. Due to the enormous size of the whole object however it proved difficult to predict the effect and the actual visual result of the cleaning, polishing and repair from the ca. 20x20 cm test areas to the full size object. How to deal with every singular piece of the ca. 160 elements of the *Futuro*, ranging from the huge, from the several meters wide shell elements -weighing each some 150 kilo's- to the smallest cupboard door?¹²

OUTSIDE SHELL

After the assembly there was a good view on the Prototype as a whole and on the disturbing impact of all the smaller and larger damages at ridges and edges on the straight lines in the design. The worn down and dull chalky surface layer with patches of old repairs, some graffiti, and the dusty oval shaped windows, some missing their black rubber lining gave it 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 ever changing positions has weakened the elements and may cause eventually more cracks in the polyester. The door, being the stairs to the interior at the same time, also showed this delamination inside, making the stairs less strong.

The pitiful appearance differed clearly from early photographs where the Prototype in real colour must have been bright light-blue, similar to the colour of the interior parts that have kept their glossier surface and the full colour.



Figure 4
Detail of one of the shell elements;
halfway the surface cleaning treatment

CLEANING THE GELCOAT

During the cleaning of the outer shell a remarkable shift in colours showed up. (see Figures 4, 5) The gelcoat colours are not monochrome blue anymore but seem to have faded partially due to sunlight exposure. Another possible reason for the patchy appearance could be the working method in production. Maybe the colors for the gelcoat were not well mixed in the first place, in some areas one can clearly recognize large brushstrokes deriving from the application of the gelcoat mixture in the mould. The overall multicoloured shades, which vary from blue to purplish beige and green grey, are not visible on the few remaining early photographs. How this process was instigated is still subject of research.

THE INTERIOR

The blue polyester interior was in much better condition than the outside although a similar but less pronounced shifting of the blue colour can be detected here as well. (see Figure 8) Some polyester interior elements are still fully blue, in particular the

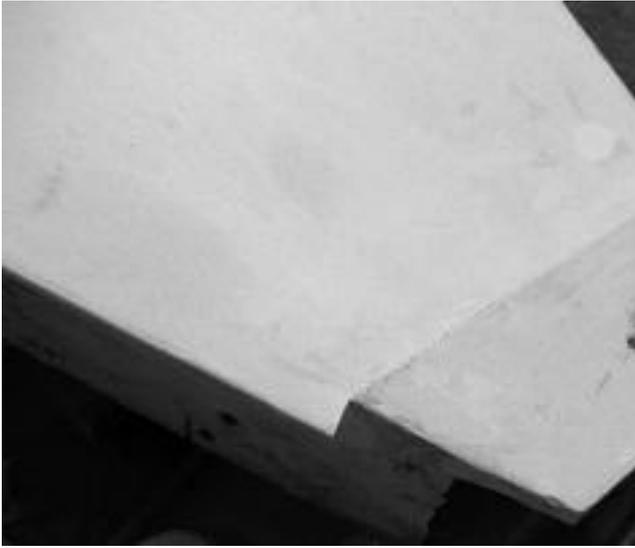


Figure 5
Detail of the same element
during the cleaning process



Figure 6
Detail of the damaged top end
of one of the shell elements

complete bathroom where sunlight hardly enters and the polyester hasn't suffered from light exposure (see Figure 9). Very disturbing in the interior were the darkened retouches, everywhere on the purple walls and the ridges covering the bolted connections between the shell elements. The surface here, with its typical fiberglass surface structure of the 'lay-up' method, was painted with matt acrylic house paint. It was decided to repaint the complete inner walls and all purple elements rather than painstakingly try to remove retouching, as there was no aesthetic or artistic input in this painted surface other than its mere colour.¹³

The cooperation with the Poly Products company provided in the know-how of repair and treatment of aged fiberglass reinforced polyester objects. The conservation treatment was carried out by Poly Products employees in one of their factory halls, accommodated with a lifting hoist, enabling easier handling during the assembly. The treatment existed in a lot of cleaning and slight polishing, filling larger lacunae and old drill holes with the appropriate filler materials, mixed in matching colours, used in the polyester industry (see Figures 6, 7). This made it possible to execute

a good and solid restoration within a reasonable time and feasible budget. The door element with its entrance stairs was cut open to reinforce the steps from the inside with extra plywood and polyester and was then closed again (see Figure 10). By refraining from future exhibition outdoors for the benefit of preserving the original, the treatment could be limited to cleaning, do local repairs and small reconstructions and strengthen the constructive components.

The assembly in 2011 showed the good final result of the conservation treatment; the oval shapes with the repetitive black lines of the oval windows and the smooth bluish polyester surface emphasize its characteristics again. The *Futuro* Prototype has regained its strong design features of futuristic design and modern life style and was welcomed back by its architect Matti Suuronen at the opening of the exhibition in the museum in May 2011.

CONCLUSION

During a two year period the condition and status of the Prototype *Futuro* 000 was investigated and subsequently treated, after evaluating consequences of the various conservation



Figure 7
Detail of the same element
after repair of the loss



Figure 8
Two fiberglass reinforced polyester elements
from the seats in the living room

options for the look and feel of the Prototype, taking into account its age and its original appearance. As the fiberglass reinforced polyester outer shell is over 40 years old now, the Prototype has reached its natural age where deterioration of the material turns into material damage and decay. Due to the poor condition of the worn polyester surface and deformations in the shell elements hindering a watertight mounting of the outside shell, a continuous placing outdoors is problematic. The Museum Boijmans van Beuningen chose a restrained conservation approach in favor of the original object, and enabled at the same time open access to the interior. This rather than aiming for outdoor exposure, that would have required a total repair, including necessarily recoating the outer shell surface to enable functioning in its original setting: outdoors. With the performed conservation treatment the Museum Boijmans Van Beuningen managed to reach the goal to preserve the Prototype for the future for an extensively longer period than its normal expected lifespan of several decades as estimated by the production companies. Maintenance is manageable as

harsh outdoor climate influences are excluded. When feasible the future mechanical handling as by assembling and disassembling will be kept to a minimum, ideally placing the *Futuro* Prototype on a permanent site indoors. This keeps the exposure of the icon look of the whole object as well as the full experience for the public of entering the space-ship like interior to a maximum.

ACKNOWLEDGEMENTS

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Figure 9
Detail with a small shelf from the interior,
still bright blue, in front of the faded blue shell element



Figure 10
Futuro Prototype.
View of the entrance in 2011 after conservation.
Photo: Nikki van Basten

his professional insight, Poly-Products employees, the SBMK Balance Group for fruitful discussions, Nikki Van Basten (Master student in Conservation, University of Amsterdam) for her contribution, and architect Matti Suuronen and his team for all the shared information.

ADDENDUM

In 2012 the first of the series produced *Futuro*'s, the *Futuro* house 001 has been completely restored after being acquired by the WeeGee Exhibition Centre in Espoo, Finland.¹⁴ *Futuro* 001 is placed on the Centre's courtyard and open to the public during summer. The treatment approach differed from the treatment performed on the Prototype; *Futuro* 001 with its yellow exterior and red and yellow interior, has received an entire new coating on the outside shell recuperating the bright yellow polished look, and protecting it from the Finnish climate. Research into construction details of the *Futuro* 001 and its production technique has enabled its comparison with the Prototype and brings to light the differences in construction and execution.¹⁵

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 information 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) Recently 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 colours for the polyester outside and inside and the upholstery.
- (3) See for a technical study: Frederic Rasier, *Het Futurohuis*, University 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 <http://arttube.boijmans.nl/nl/video/futuro-nl/>
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 microclimate inside small houses and objects in the outdoor. See: S. Stigter, L. Beerkens, H. Schellen, S. Kuperholc. *Outdoor Polychrome Sculpture in Transit: Joep van Liesbouts' 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 London 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), page 30. Photo by: Lehtikwa/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, can be found on the inside of the shell elements the so called 'hand lay up' technique. This results in a more rough surface with the underneath 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* <http://www.tate.org.uk/research/tateresearch/tatepapers/07autumn/>
- (12) Information kindly provided by Nikki Van Basten Master Student conservation at the University of Amsterdam, who registered the complete inventory of all elements of the Prototype in 2011.
- (13) Recent 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 Vienna.
- (14) See: www.weege.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 it 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.

