

Project "Postfossil Ecowoodbox Kindergarten" / publication in "NEW PREFAB" including invited authored foreword, LOFT Publications, 2008



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PRESENTATION

With international ambition and a vision of the future, "New Prefab" presents fourteen residential and twelve non-residential projects as examples of industrialized and prefabricated construction systems for different purposes — homes, nurseries, cultural installations and commercial buildings. Designs are also featured which have not yet been produced, as well as some that will never take shape, but their unique characters make them worthy of inclusion.

The book highlights projects varying from classical solutions to more experimental proposals, and was compiled with the collaboration of 25 studios on four continents (Europe, America, Australia and Asia). Half the projects are from Europe — principally from Austria and Germany — and several are from the United States, which is logical as they are three of the countries in which the prefabrication industry has been most prolific.

As a prelude to the visual exhibition of the projects, the next few pages contain the contrasting opinions of three specialists: Yasuhiro Yamashita (Atelier Tekuto), who provides an historical vision of the prefabricated market in Japan and in the newly emerging China; Martin Despang (Despang Architekten), who confronts the situation of the modular construction market in his native Europe and in the United States, where he works as a university professor for most of the year; and Luis de Garrido, one of the main voices on ecological architecture in Spain, and a specialist in reinforced concrete prefabrication systems.

THE NEW PREFABRICATED

The legacy and the future of European and American prefabrication

Construction is an instinctive action, while prefabrication needs more planning. Manufacturing is as old as man. Primitive hunting weapons have been found which are evidence of the first prefabrication strategy, taking the place of manual tools which were constructed spontaneously each time hunger struck. With these improved weapons, man increased his hunting ground and moved into the era of prefabricated architecture. He abandoned his old cave, which was the habitat of the instinctive creature using what the earth provided, and became a forward-thinking nomad, whose accommodation formed part of his hunting strategy. In not using the shelter nature provided, he created ephemeral homes, the primitive fore-runner to prefabricated mobile architecture, which presented a combined action between the physical and the spiritual that has never again been equaled in the prefabrication system.

Where has that first prefabrication system, which to such an extent liberated the so-called civilized western cultures, taken us? The original advances in prefabrication banished the cave, but ironically, as far as the modernist ideals of 'light, air and sun' are concerned, the progress of civilization seems to have returned to it. Having reached the supposed highest point of our evolution, prefabrication — the youngest but most efficient tool of an optimistic modernity — has been degraded to bashfully hidden and

masked tight standard frame wood skeletons, resulting in the neo-colonial McMansions which today make up the numerous residential neighborhoods of North America.

The difference between prefabricated homes in North American and in Europe could lie in how near or far both cultures are from their origins. With Fuller's Dymaxion House, Entenza's Case Study Program, Eichler's houses, the contemporary bravery of Dwell Magazine, and a workforce of young, *avant-garde* architects, North America has always been more adventurous than Europe and has fought for its young legacy to avoid returning to the world of the caveman. On the other hand, Europe has used its long history to create a greater diversity in the prefabricated home sector. In society as a whole, however, specifically in terms of following this evolutionary thread, there is a common mistake which is more evident in the field of common architecture, as demonstrated by the numerous factories and warehouses where emphasis has been placed exclusively on efficiency, creating highly negative coldness. The same has happened with housing.

With the beginning of the new century it is possible to see a change in patterns which can be explained by the concept of sustainability. The popular current tandem of sustainability and prefabrication cannot, however, fulfill its promise if we repeat the mistake of being concerned only with the physical. But the premises to start again are attractive: the main strategy of the new

post-fossil prefabrication of the 21st century could be a new impartiality and the humanistic use of technology. So, for now, with ETFE we can make reality of the fleeting dreams of Fuller, following the nomadic tradition of light constructions and through the 'vacuum sealed insulation panels' of the Metabolists; and in the future it will be more so, as some American scientists have already developed bio-degradable plastic without petroleum. Classic construction materials will also be redefined. For example, wood will be reinforced by thermal treatment and, depending on its use as sheets of wood or thick, compact, unclad film which provides healthy climatization, will offer multiple solutions, and will become the new discovery which will change current light wood housing in the United States. The introduction of Phase Changing Materials (PCMs) will also help to solve the lack of thermal storage in light, prefabricated buildings, while at the same time prefabricated cement components will be rediscovered for their durability and thermal properties.

The growing architectural interest in bionics should do more to improve the image of prefabrication and refute the traditional stigma that it is monotonous for being repetitive. Nature is the best example of the fact that a massed collection of similar elements is far from boring, so we place our hopes in the next generation of digital prefabrication. Our idea is that, during the manufacture of mechanized components, and those controlled by computer, the construction architects in front of the computer must be



allowed to influence the production in a direct way. The more varied the ideas of the planner, the more varied the products will be. Each finished piece will be unique and in this way the negative image of boring or monotonous prefabrication will be eradicated.

The younger generation must take on the challenges of their century and so re-conquer, in the same strategic way as their ancestors, the discipline of prefabrication as a pragmatic and poetic exercise.

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and Associate Professor at the University of Nebraska in Lincoln, U.S.A.
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POSTFOSSIL NURSERY



Despang Architekten

This educational center is located in Hanover, in a suburb created in the 1950s. The new nursery replaced one which was located on the same site for more than 30 years. The client for the project was the department of municipal and social installations for the city of Hanover. The plan was for a nursery to accommodate a maximum of

75 children, designed according to the guidelines set out by the German *passivhaus* certification. The building is rectangular and the south façade is a curved glass wall-curtain which makes maximum use of the sunlight, with the trees in the area providing a natural screen for the building. The structural system is a light frame prefabricated wood platform

system, with thermally disconnected TJI trusses as the peripheral members. On the north façade, the 15.75 in shell is made of sheets of plywood, with triple-glazed interior windows incorporated. The use of these sheets enables transparency between the interior and exterior, despite the fact that the north

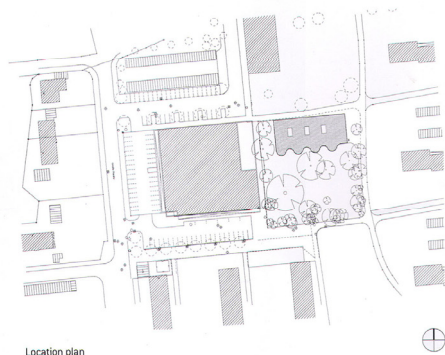
façade has a clearly closed character, while the south façade is open. Inside the walls are made of a birch plywood covering, the ceiling is acoustically insulated with wood shavings and the floors are brown linoleum. The structure of the roof is made of wooden beams.



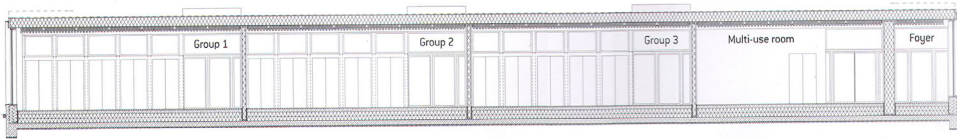
“POSTFOSSIL” NURSERY

Architect: Despang Architekten
 Completion: 2007
 Category: educational installation
 Location: Hanover, Germany
 Construction materials: wooden frame, glass, TJI [Truss joint I-beam] with cellulose insulation
 Cost (prefabrication + transport + installation): 925,000 Euros
 Construction time: 30 days (prefabrication), 7 days (installation)
 Durability: decades
 Surface area: 6,964 sq. ft. (total area), 4,123 sq. ft. (usable surface)

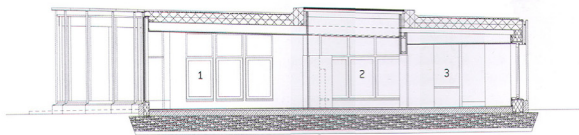
Photo © Olaf Baumann



Location plan



Longitudinal section



Transversal section

- 1. Class for small children
- 2. Corridor
- 3. Rest room



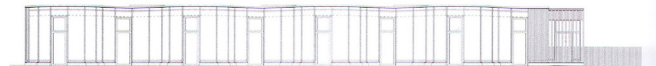
The nursery is located in an area where dense urbanization is mixed with green areas. In the 1970s there was a nursery on this lot. It was only intended to be temporary, and deteriorated over time.



The prefabricated main structure is made of wood with cellulose insulation. The interior arrangement follows bio-climatic principles, so that the area facing north is more closed, while the south facing areas make the most of the sunlight.



North elevation



South elevation



East elevation



West elevation



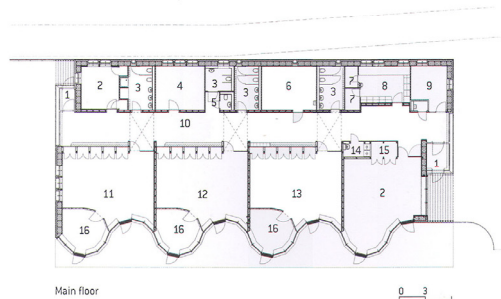
Martin Despang:

"The public always seems to be in favor of what we call the 'TOYS 'R' US' mentality, which means that the bigger, the brighter and the more colorful the better. The planning team still believes in the old 'play in the muddy outdoors' approach, where the complex simplicity of the textures and patterns of nature are much more inspiring than capitalistic driven human imagination could ever be. This has been an ongoing discussion in all educational projects in the past, and so it was here, when it came to

presentations in panels and committees. Luckily the client was very open and willing to follow us into the mud!"

"The children and the teachers have just moved in. After having witnessed every step of the building process, they expressed their excitement about the healing quality of this healthy space." Asked about his favourite aspect or quality of the building: "The fact that the Postfossil building is naturally adapting the first postfossil generation for a future in challenging both eco — and architectural — friendliness."

The service areas are located on the north side and connected to the living areas and the bedrooms by a corridor which is large enough for the children to play in. The interior of the center receives plenty of natural light.



- 1- Foyer
- 2- Multi-use room
- 3- Rest room
- 4- Staff room
- 5- Rest room for the disabled
- 6- Mechanical room
- 7- Pantry
- 8- Kitchen
- 9- Office
- 10- Corridor
- 11- Group 3
- 12- Group 2
- 13- Group 1
- 14- Laundry
- 15- Closet
- 16- Room for small groups



The use of sheets of wood on the west and north façades creates patterns of light and shadow which capture the children's imagination. The nursery is open from 8 am to 4 pm.

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