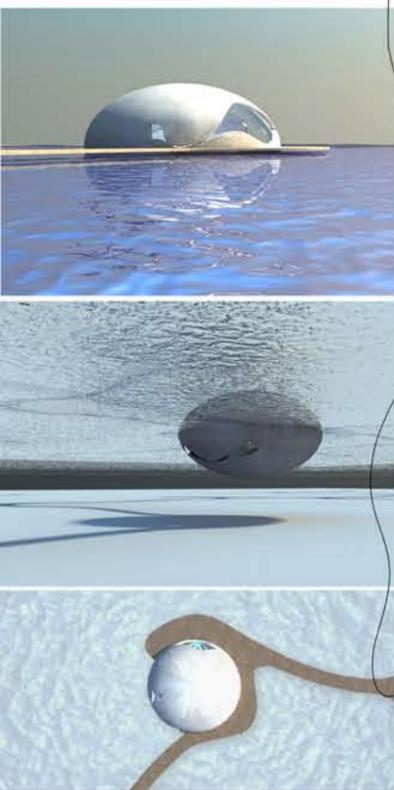


Reverse Effect



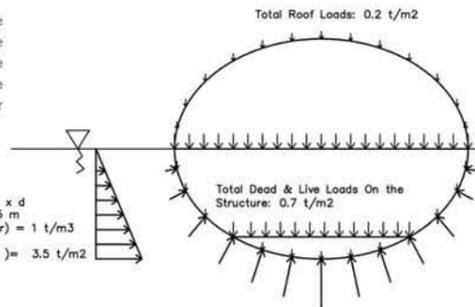
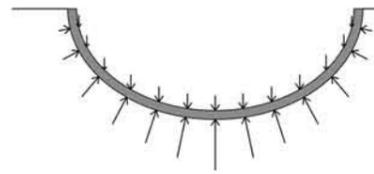
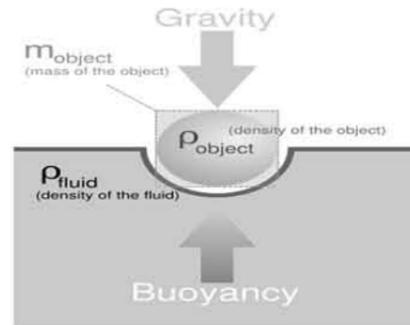
[Hybrid] as a System

The project suggests a particular solution for an alternative life on the water, emphasizing the advantages of the concrete, reinforced with steel fibres. This composition provides the opportunity to construct a floating structure which differs from the traditional systems in terms of its homogeneity, flexibility and the ease of production. As a whole, the project is questioning the limits of the concrete and suggests a whole new water-based urban quarters.

The floating houses neither require earth removal nor touching on the vegetation. The structure, taking the advantage of buoyancy and the uniform bearing pressure of the water, eliminates the foundation structure need.

The steel fibers inside concrete, lowering the permeability against water, lets the structure have a more life time without the need of extra water protection. Even if, some fibers close to the surface are corroded, due to their scattered and independent state, the strength of the structural element is not affected significantly. Besides, galvanizing the fibers or the using stainless fibers easily eliminate the corrosion risk in the structure.

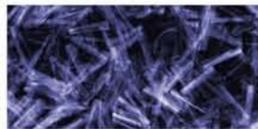
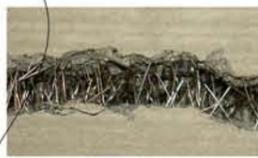
The uniform water pressure, which increases to the base of the structure, utilizes the dome geometry to decrease tensile stresses in the dome, resolving them to the compressive stresses which can be well borne by concrete itself. The reduced amount of tensile stresses can be resisted by fiber reinforcements in the concrete.



[Hybrid] as Material

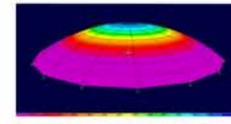
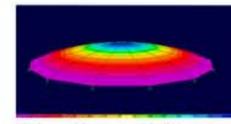
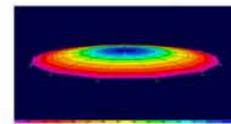
Fiber Reinforcement:

Unlike the traditional steel bar reinforcements, steel fibers are homogeneously oriented inside the concrete section which results in a better shear strength capacity of the element. Also, the steel fiber reinforced concrete is more resistant to minor cracks which may cause permeability problems to a structure floating on the water.



Self Compacting Fiber Reinforced concrete:

The Self Compacting Fiber Reinforced concrete is very well diffused to every part of the formwork that makes the concrete work with its full strength capacity at every point of the structure.



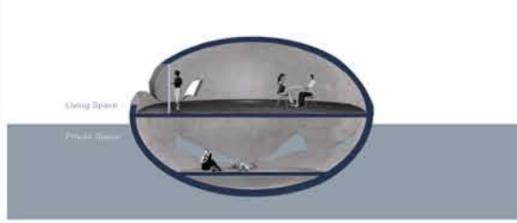
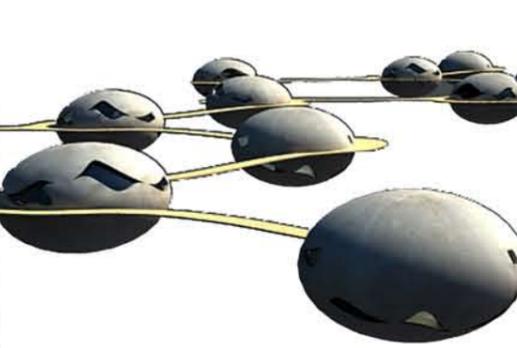
The bottom part of the structure loaded by the water pressure, has lower moment values thanks to its dome geometry. The hybrid material that forms the structure, effectively balances the stresses due to the characteristics of its concrete and steel fiber components.

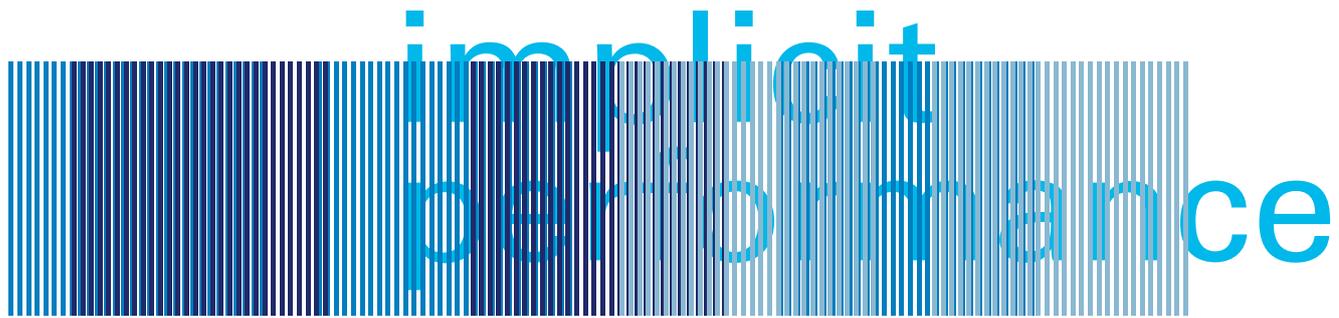
CONSTRUCTION PROCESS

The structure composes of three main precast elements. The top dome, the slab and the bottom dome. A normal capacity crane can immediately start their life on the water, just after the elements are mounted in the site. Anytime during their lifetime, they can be disassembled, and rebuilt in somewhere else, or simply sailed to another place.

The Pier - House Connection

For overall stability and serviceability concerns, the houses are locked to the piers by anchors, which constraint their horizontal translation, whereas the buoyancy of the water maintains their vertical stability.





exploring the hybrid condition

Italian Jury Report

Meeting of the Italian National Jury for the 3rd Edition of the International Concrete Design Competition "Implicit Performance – Exploring the Hybrid Condition"

On 26 May 2006, at the headquarters of AITEC (Italian Association of Cement Producers) in Rome, the National Jury met to examine the projects submitted for participation in the 3rd Edition of the International Concrete Design Competition with the theme "Implicit Performance – Exploring the Hybrid Condition".

Jury President Prof. Arch. Francesco Cellini opened the session with a salute to all the members present Prof. Arch. Carmen Andriani, Prof. Arch. Marino Folin Prof. Ing. Camillo Nuti, Prof. Arch. Angelo Torricelli and to Architect Maria Teresa Briotti as National Secretary.

Ing. Gabriele Del Mese was unable to be present owing to prior work commitments abroad.

The Jury's proceedings begin with an initial general examination of the 14 projects submitted. An increase in the number of projects submitted over the previous edition is noted but the number is not considered satisfactory, especially in relation to the promotional activities carried out within the University.

One probable cause for the low participation figure may be difficulty on the part of students to reconcile preparation of the Competition with preparations for their University exams.

Following these initial considerations the discussion moves to a detailed examination of all the projects, which results in ample debate.

The members of the Jury observe that the projects submitted are very different from each other and display very different approaches: some propose advanced technological solutions that are costly to realise, others focused on the study of the material concrete but did not arrive at an interesting architectural solution.

The diversity of the contents of the individual projects gives rise to a series of observations on the competition's theme.

The Jury feels that the breadth of the theme "Implicit Performance" disoriented the students more than it guided them in their search for an architectural proposal.

In addition, the vastness of the theme and its theoretical connotation enabled the presentation of projects very different from each other and, therefore, hard to compare.

The members of the Jury agree on the advisability, in the future, of giving the theoretical theme of the Competition a more sharply defined field of application that narrows the range of possible applications.

In other words, they express a positive opinion on the choice of a theoretical theme, usable by the various schools of architecture, but they feel it is advisable to define its field of application.

This can be proposed either at the international or national level.

At the end of the discussion the Jury decides to honour ex aequo the projects below, for the following reasons:

AZ972 "Layering" awarded for the interesting study of the material, in particular of the stratifications of different concrete mix designs. Each layer is an element with a structural function, with its own mix design (defined "magic formula" in the project), and is cast after a three-hour interval from the preceding one. Hence an exploration of the implicit technological properties of the material.

MR198 "Reverse Effect" awarded for the application of the "hybrid" concept both to the system and to the material. The project, rich in inventiveness and imagination, envisages a system of floating elements

usable for a city on the water that uses the thrust of the fluid as construction component. In addition, the concept of hybrid for the material consists in proposing the use of a metal-fibre-reinforced concrete.

EM023 "Noise Environmental Pollution Barrier" awarded for the use of the implicit properties of concrete in the design of a barrier element with a twofold acoustic and environmental function. To develop the acoustic barrier properties, the panel is equipped with cavities that "capture" and neutralise sound waves and therefore noise. For its anti-pollution function, no-fines concrete was used in the mix design in order to increase the surface in contact with the atmosphere and the absorption of CO2.

The Jury also singles out for Honourable Mention the project:

CG842 "Concrete Garden" Deserving of attention for the freshness and inventiveness of the project: a performance of various recreational spaces made of concrete, use of glass fibre in concretes to achieve transparency. Appreciation for the graphics and the citation from Gianni Rodari, "La fantasia aiuta a risolvere la realtà" (The imagination helps to solve reality).

After the decisions, the envelopes identifying the participants are opened. The winners are:

AZ972 Paolo BORGHINO – Politecnico di Torino, Facoltà di Architettura

MR198 Fatma ALIOSMAN, Alper KANYILMAZ, Tolga TUTAR, Ayse BOZKURT – Politecnico di Milano e Lecco, Facoltà di Architettura

EM023 Eleonora MASSACCESI, Stefano CEROLINI – Università Politecnica delle Marche, Facoltà di Ingegneria Edile e Architettura

And the honourable mention is:

CG842 Andrea GARZULINO, Elena CIAPPARELLI, Viola BERTINI – Politecnico di Milano Bovisa – Facoltà di Architettura

The cash prize goes to the three winning groups, divided into equal parts, as well as participation in the Master Class and publication of the project in the book ICDC 3rd Edition – Implicit Performance.

The group singled out will see its project published in the book of ICDC 3rd Edition – Implicit Performance.

Rome, 26 May 2008

Minutes recorded by Maria Teresa Briotti– National Secretariat

Minutes approved by the members of the National Jury:

Prof. Arch. Francesco Cellini - President

Prof. Arch. Carmen Andriani

Prof. Arch. Marino Folin

Prof. Ing. Camillo Nuti

Prof. Arch. Angelo Torricelli