

## **German Jury Report**

Award Winner CJ 980 solarconcrete Barbara Graßl, Technical University Munich

The "solarconcrete" work shows the development of a proposal whereby precision-mounted elements in a concrete wall provide an additional means of "capturing" the sun's rays during the cold seasons of the year. The thermal energy so captured is then fed into the inside of the building in shifted phases through the concrete wall with high storage capacity. The solar elements developed by the project consist of a moulded Plexiglas part connected to an absorption element and an aluminium casing. These solar elements are integrated in concrete walls and provide not just an additional energy source but also offer their own powerful aesthetic appeal in keeping with the character of the concrete wall and with manifold possibilities for extended design.

The project is rooted in sound technological research. All its technical aspects – from the way the angle of incidence of the sun's rays varies from season to season to the material characteristics of the various components – are investigated and presented with great conviction and plausibility.

The way the work links in with the theme of the "hybrid" is particularly rich and illuminating. This also has to do with the way the work combines aesthetic appeal with technological functionality. The author has achieved a subtle blend of aesthetic added-value and technical specifications. Not the least of the outstanding merits of this work - apart from its high quality of design and masterful constructive planning – is the elegance of its implementation and the way it invites further development. Thus it would be interesting to investigate whether any excessive amounts of thermal energy produced during the summer months could be further minimised below the set limits or whether they could be used as an addition energy source for building services.

#### Award Winner FX018 underground station Felix Wurst, Leibniz University Hanover

The "underground station" project shows the compelling use of experiments in space and light and their exemplary deployment in a design proposal for the HafenCity in Hamburg. The complex approach adapted to the theme of the competition is apparent from the creative analysis stage through to the conceptual design. Two small photos of an underground station in Moscow and the TWA terminal in New York explain the thrust of the project which is to treat the inner space of public buildings as a spatial experience of distinction. The second track of the analysis develops the main design idea, the doubly curved module over which the project programme and project aims are outlined, giving final definition to the theme of the design.

The work first impresses through the clarity of its presentation, demonstrating as it does the complex interactions of reflection, experimentation and serial studies in modelling and drawing during the work process and how these lead to a compelling solution. Of particular interest is the playful use of parametric design methods. Thus in the exemplary realisation of a Hamburg underground station the focus is not on

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the actual module but rather on its spatial impact accentuated by the fall of natural light. This interpretation of the theme of the competition is impressive on more than one level, and especially in the way the design combines ornamental and constructive elements as mutually complementary parts of a single heterogeneous solution. Of outstanding merit too is the way the realisation of the constructive solution is consistently based on full use of all the possibilities inherent in concrete. Even if the supporting structural approach in its blend of supporting and suspended elements is certainly daring, this design concept is well worth considering as a viable project to be built.

#### Award Winner JY007 ComfortCapsule Concrete Juliane Greb and Yü Chen, RWTH University Aachen

"ComfortCapsule Concrete" is a futuristic work with a slight aura of science fiction about it. The point of departure for this entry are the stereotypically negative associations people have about surfaces of concrete on the inside of buildings which are generally seen as cold, bare and sound-reflecting. "ComfortCapsule Concrete" is an attempt to overcome such well-worn notions that makes exciting play with the sensuous qualities of concrete. All the conceivable textural and physical qualities of concrete surfaces are extracted and examined to show the range of possibilities open to the material for application on the inside of buildings.

To achieve this goal a combination of concrete and synthetics has been used. A temperature-controlled transformation process enables synthetic elements integrated in the concrete surface to react dynamically to outside influences and effect positive changes in the quality of the surface.

In terms of its constructive realisation the project is both feasible and consistent. Issues of technical detail such as the actual time span of the distortion process or interaction of the compounds or the formation of cracks in the later added layer of concrete due to temperature deformation in the plastics together with issues of durability and robustness need investigation in further stages of the design cycle.

In short, however, the work is an exceptionally original and refreshing take on the theme of the hybrid. Of particular merit is the way it combines speculative technological innovation and functional added-value while also offering an outstanding quality of design.

### Award Winner KT 215 thermoshape Benedikt Krienen and Gereon Töpper, RWTH University Aachen

This entry for the competition is a creative response to a critical issue in modern concrete construction – how to produce freely formed double curved concrete elements (such as those used for the building shell).

This theme shows masterful development both in the conceptual and modelling stages. Of outstanding merit is the division of the industrial production of a sandwich element into factory-based formwork, reinforcement and insulation, and on the spot grouting of large-scale elements on the actual construction site. This brings us much closer to the use of computer-controlled realisation of complex geometries for concrete engineering, even if much more research is needed before we can develop viable practical solutions. The concept makes meaningful use of state-of-the-art technologies both in terms of building materials and construction methods and in terms of actual production processes.

At the same time, in harmony with the theme of the competition, both the creative process and the final results make exact use of the characteristics of a variety of base materials to arrive at the definite solution. Thus the work represents an important contribution to discussion of the on-going development of concrete constructions, even if the manner of building in concrete developed so far means that concrete is not suitable for any further structural roles beyond that of its self-supporting qualities.

The presentation of the idea is also excellent and readily understandable with the diagram-like comics offering a particularly welcome departure from traditional forms of representation.

#### Commendation LK 111 - Optical-Fibre-Concrete Lukas Kasten, University of Kassel

This work takes the model of a light sculpture design as the basis for the production of curved concrete surfaces endowed with optical fibres. To this end it has conceived and developed a special formwork system through to the realisation of a prototype. The result is a sculpture of space and light of outstanding sensual and aesthetic quality. The masterful quality of its realisation was singled out for special praise. However, the project's reliance on existing technologies for light-permeable concrete also raised doubts as to the originality of the project in terms of the theme of the competition. Even so, the work still represents a major contribution to discussions around the theme of the hybrid, while its combination of materials and their given realisation does indeed open up the way to new original solutions for applications of concrete.

#### Commendation X0 815 - FA-MO[U]SS Concrete Jürgen Utz, Daniel Gross, Benjamin Kinzinger, University of Stuttgart

This work proposes a system for introducing water-absorbent granules into the surface layer of concrete to make it a suitable habitat for certain species of plant life such as moss. In addition an impregnating layer – designed to prevent the growth of plant life – opens up the way for novel architectural applications. The development and presentation of the work carries conviction yet in terms of design it merely scratches the surface. Some aesthetically highly intriguing solutions are indeed presented, yet what is lacking, for instance, is their deeper development in terms of space or a fuller presentation of further possibilities for their use which the work only hints at. Overall, however, the work offers an interpretation of the competition theme which is both exciting and inspirational in parts, and well deserves its commendation.