

# Clean tech concrete solutions

**Cobix**'s void former technology not only provides time-saving and economical methods, it also minimises the building's construction environmental footprint.

**S**ociety's global ecological footprint already exceeds the Earth's biocapacity and the population is increasing rapidly, making things worse. Clean technology solutions are required even in traditional fields such as concrete frame structures. Cobix void former technology offers a great contribution to ecological, economical and sustainable improvements in concrete frame structures.

## Warsaw National Stadium compound

The owner, the Polish Sports Ministry, only gave the project the go-ahead in July 2009. The multifunctional arena, designed and planned by JSK Architekci and structural engineer Matejko I Partnerzy, is emerging beside the River Weichsel under the responsibility of the frame contractor Alpine-PBG / Hydrobudowa. The stadium itself will offer space for 65,000 spectators, while the compound will feature a coliseum with 15,000 seats and a swimming stadium with 4,500 seats.

The roof of the stadium contains a mobile membrane inlay construction that extends over the football field to allow any events to be held, independent of weather conditions. The seating geometry even permits temporary conversion into an athletics stadium by moving the field up to the level of the middle gallery. The stadium building envelope is

reminiscent of a wicker basket and incorporates a banner of Polish red and white. Embedded in the scenery as the arena is, it will become a distinctive landmark for the city.

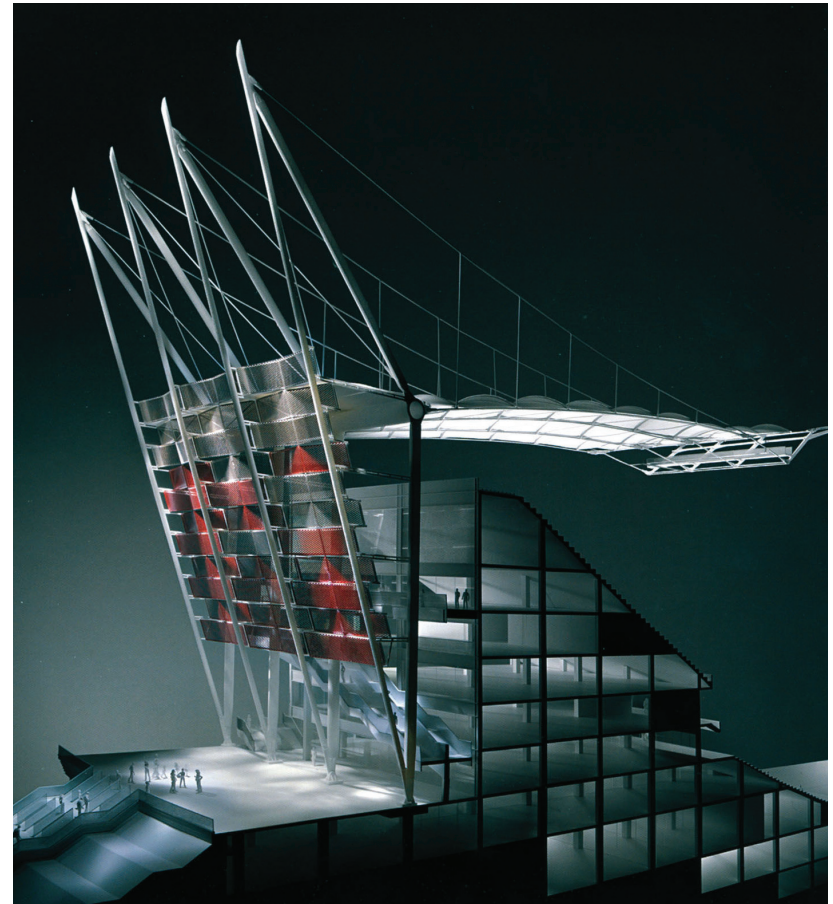
## Cobix benefits

The substantial weight reduction of 34,260t generated through the use of Cobix void former components minimised effort and expense while maximising static performance. Timesaving construction is imperative in order to ensure the completion in time for the opening match of the European Championship.

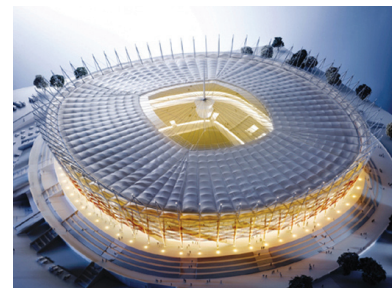
The industrially manufactured filigree slabs by Baumat, Torun, are fitted with the Cobix void former elements on site, where productivity amounts to 6,300m<sup>2</sup> a week. The achieved results, summarised in the following key figures, are breaking new ground with:

- 152,000m<sup>2</sup> of total slab surface
- a span of 10m
- 400mm concrete flat slab
- a dead-load reduction of 34,260t
- concrete savings of 13,704m<sup>3</sup>
- a 2,878t reduction in CO<sub>2</sub> emissions.

The two-way load-bearing Cobix void former technology allows resource efficiency and has created specific savings of 13,704m<sup>3</sup> of concrete and 10% of reinforcement steel in comparison with a traditional massive slab. The reduction in CO<sub>2</sub>



The roof of the stadium contains a mobile membrane inlay construction that extends over the football field.



The stadium building envelope is reminiscent of a wicker basket.

emissions is 2.878t on just this project, which is the equivalent of driving 500 times around the Earth by car. ●



Filigree slabs produced by the precast factory, Baumat, Torun, are fitted with the Cobix void former elements on site.

**Further information**  
Cobix technologies AG  
Website: [www.cobix.com](http://www.cobix.com)