



# Concrete Panels: The 2009 Chelsea Flower Show

## The Fenchurch Urban Garden - Winner of Silver Gilt and Most Creative Garden Design Awards - Paul Hensey



Remo Pedreschi and Alan Chandler



Our involvement with the Chelsea Flower Show began following an interesting discussion with Paul Hensey, award winning designer, of Elysium Design Ltd. Paul was enthusiastic to apply some of the techniques we had been developing in his submission for the 2009 show. We were interested in adapting and applying the techniques in a live project.

The design required a series of panels with undulating forms flowing across the ground and rising vertically. There are many different ways of fabric casting. The process for the Chelsea panels would require a particular technique to be developed.

The layout of the panels in the design is presented as six large pieces. It was impractical to cast these as single components and the panels were broken down into a total of 19 separate pieces, these interlock like a large three dimensional jigsaw.



Given the short timescale and existing commitments only one prototype was made at the EU Workshops. The prototype provided sufficient insight to develop the technique for the panels themselves but not the junction between the wall and ground panels, this would be developed later. The final overall dimensions of the wall panels were handed over on the 2nd of April, whilst both Remo and Alan were overseas. These gave a lot of latitude and interpretation in the nature of the undulating geometry certain the key dimensions that required considerable accuracy. The detailed design of the panel and formwork was prepared by Remo whilst in New Zealand and emailed to EU student Keith Milne, who transferred the details onto CAD.



The largest piece is 2.5 by 0.75 metres. Each panel has a different overall geometry and form.

Key elements in the formwork are the plywood profiles that help define the undulating geometry and overall dimensions of each of the panels. These were manufactured, at very short notice, by Sharkey, using a state of the art CNC router at their factory in Musselburgh. The remaining parts of the formwork were produced at the EU workshops.

The panels cover an area of approximately 21 square metres with varying thicknesses upto 300 millimetres.





The formwork for the panels is quite minimal and fitted easily into a Transit van for transportation from Edinburgh to the Docklands Campus at UEL Alan set up a mini pre-casting yard at the School of Architecture and Visual Design.

The formwork was assembled and the concrete cast by senior architectural students and staff of both institutions. Special mention for Grant - casting and lifting between tutorials. The concrete used re-claimed sand from crushed concrete and a lightweight aggregate made from waste materials supplied by OCL Regeneration Ltd. The amount of material used in the formwork is considerably less than conventional formwork, the concrete is lighter in weight and uses waste materials, both of which improve the sustainability of the panels.

The fabric used in the original prototype had been selected on the basis of its texture and surface finish however it proved extremely difficult to obtain a sufficient quantity for the panels and an alternative was used and this led to a variation in colour between the panels.

**Grateful thanks to the students and staff of both Universities and the contractors involved in the project.**

**Prototype development: Keith Milne, Jo Pritchard Alan Gloyne, Mark Pettie,**

**Plywood profiles: Mike McQuire and Ray Greenan, Sharkey**

**Formwork production,: Malcolm Cruikshank and Alastair Craig of EU Workshops**

**Formwork assembly, organisation and casting: Grant Nahorniak Daniel Lee, Keith Milne, Jo Pritchard**

**Dr Anne-Sofie Laegran and Alex Ogilvie of ERI and EU for support for travel**

**Sand and Aggregates: OCL Regeneration Ltd**

**Transportation: AR Pugh.**

**Installation: Scotscape Ltd.**

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