

LONDON FESTIVAL OF ARCHITECTURE
 19 JUNE - 4 JULY 2010
 WWW.LFA2010.ORG



SUAU COPYRIGHT

DEPLOYABLE STRUCTURES

Deployable Structures are structures that can change their shape so that they have a compact form for, e.g., transportation or storage but can then expand for their final use. Simple examples include umbrellas or tents; but more highly engineered deployable structures are used in inhospitable environments

VERTICAL STUDIO WSA 2010

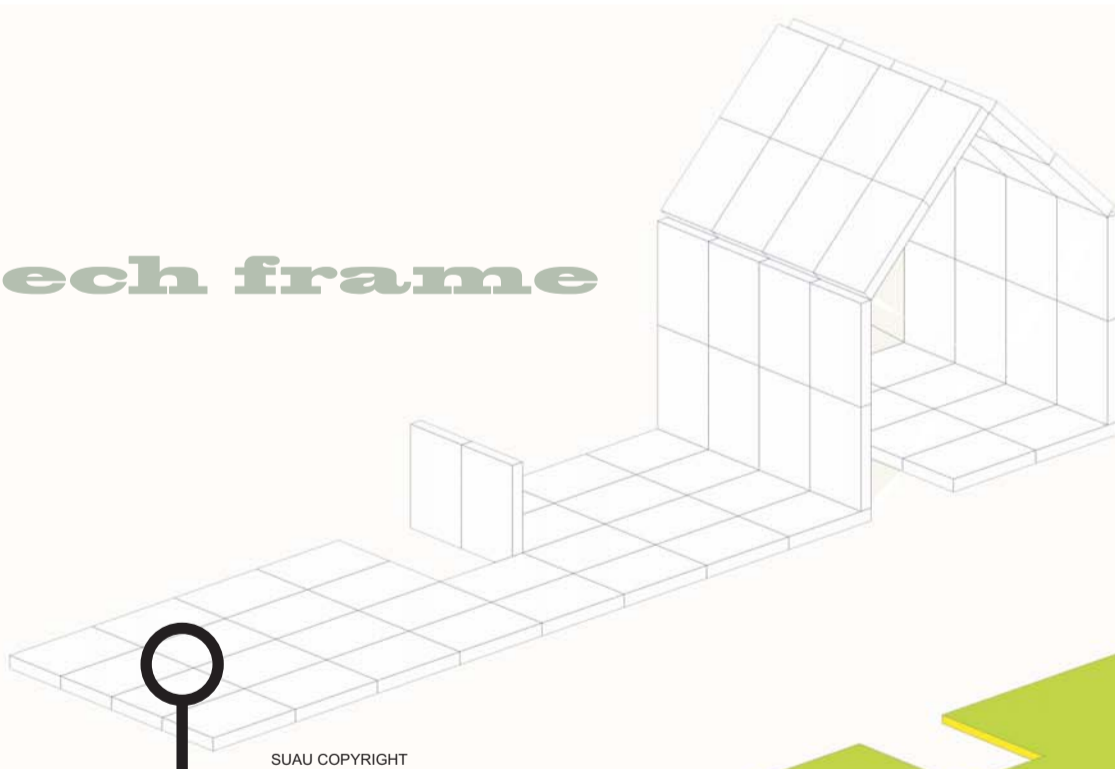
Dr. Cristian Suau & Rachael Davidson

LONDON FESTIVAL OF ARCHITECTURE 2010

INTERNATIONAL ARCHITECTURAL STUDENT FESTIVAL

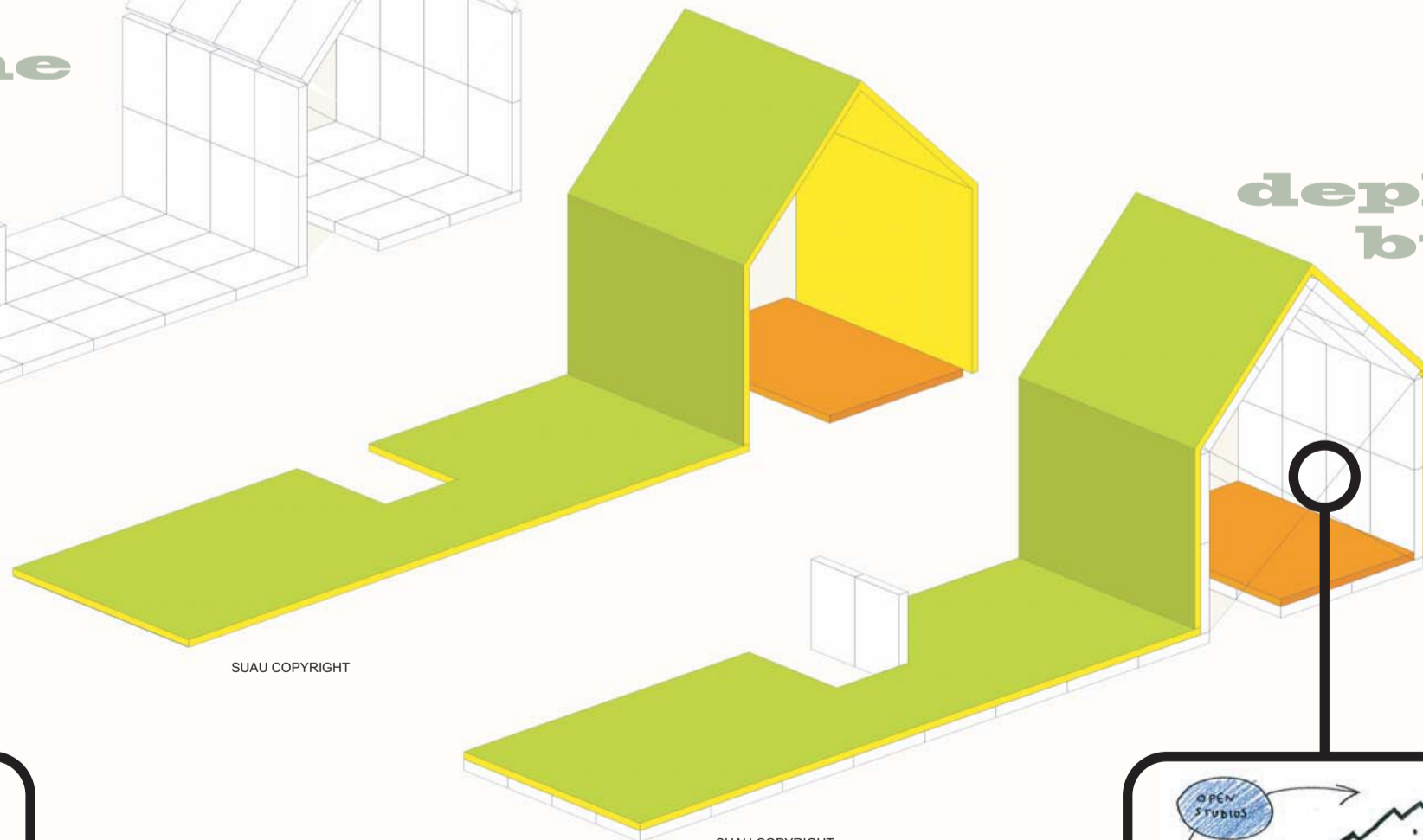
1. building allotment for children in London Festival of Architecture
2. cheap-green-rapid frames
3. grew green on smart skins

low-tech frame



SUAU COPYRIGHT

green wrapping



SUAU COPYRIGHT

deployable building

SUAU COPYRIGHT

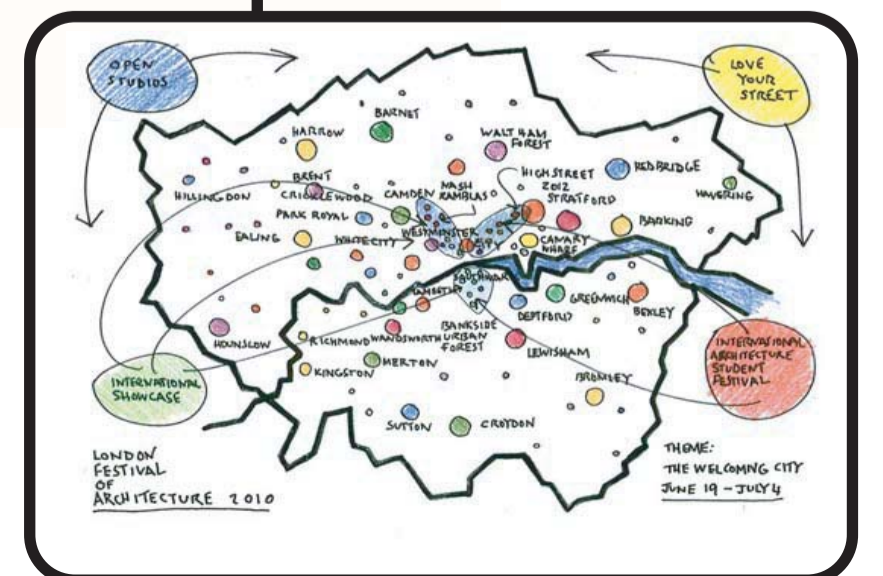
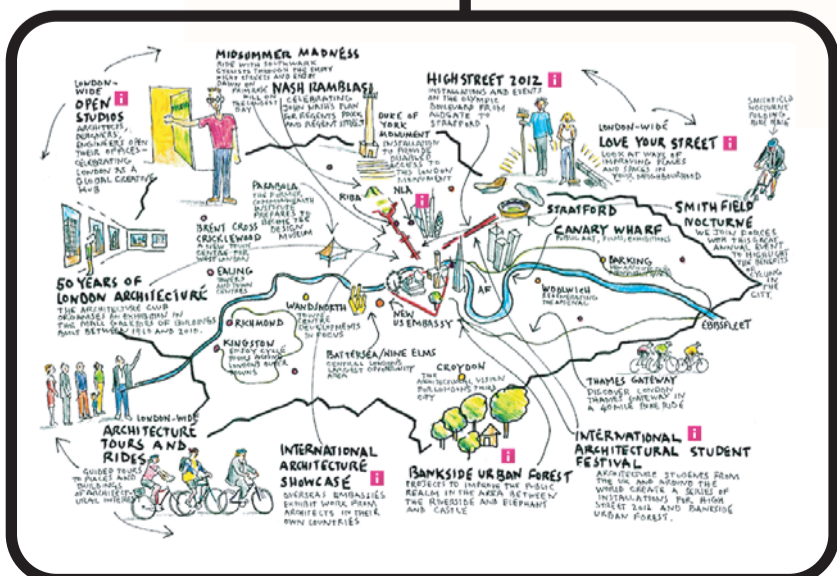
LONDON FESTIVAL OF ARCHITECTURE

<http://www.lfa2010.org/>

The Architecture Foundation



RIBA London



**VERTICAL STUDIO PROPOSAL WSA
SUMMER 2010**



**LOW-TECH
DEPLOYABLE
STRUCTURES**

Dr. Cristian Suau
Rachael Davidson

DEFINITION

“Deployable Structures are structures that can change their shape so that they have a compact form for, e.g., transportation or storage, but can then expand for their final use. Simple examples include umbrellas or tents; but more highly engineered deployable structures are used in inhospitable environments.”¹

“A deployable structure is an assembly of prefabricated members or elements that can be transformed from a closed compact or folded configuration to a predetermined expanded form of a complete stable structure capable of supporting loads. The functionality and the feasibility of the design of such structures depend not only on the structural behaviour of the final configuration under service loads but also on the structural response during deployment and during dismantling.”²

INTRODUCTION

In recent years, there has been an increasing interest in transformable design applied in Architecture as a way to create spaces that leads today's dynamic, flexible and constantly changing every-day life. Unprecedented technological, economic and demographic growth is subjecting traditional building codes and construction standards to the test. The intensification of social and urban change has increased the demand for space within the urban environment. Consequently Architecture is evolving to become more adaptable to meet such spatial challenges and thus allow for flexible usage. Ultimately the question to be investigated during this workshop is whether transformable space-frames can better lead the demanding requirements of compactness, lightness and speed.

POTENTIAL GOALS

- Conceptualising the terms and defining folding, deployable, and portable. All three have overlapping themes, which is important to demonstrate the need to combine to achieve innovative applications. How can they be used to better address the demanding requirements of the modern world?
- Learning from natural systems and games; for instance, the logic of the beehive, the lesson of the elephant vs. the butterfly, and the notion of cell and the configuration of various tissues.
- Participation in the London Festival of Architecture 2010 with a one-week installation

PLACEMENT: SOUTHBANK, LONDON

To quote Buckminster Fuller; *‘Cities have turned into a continual evolutionary process of evacuations, demolitions, removals, temporary vacant lots and installations.’* We would encourage the fabrication of innovative and low-budget deployable structures accommodating an allotment for children in a communal residential courtyard. It has to be as versatile, lightweight, cheap and portable as possible. Nevertheless the given site location proposed for the children allotment is Gatehouse square, Southwark Bridge road, Southbank, London. A small gap in the wall on the Southwark Bridge road reveals a hidden space framed by mature plane trees. A sleepy residential development sits in the midst of all the office spaces. The base structure will be conceived in Cardiff and built in London as part of the London Festival of Architecture between 19 June and 4 July 2010. For more info see <http://www.lfa2010.org>

BUDGET

- Building materials: pallets, cardboards, plastic and insulation rolls and metal connectors
- Van rental
- Booklets
- Publicity through flyers and websites

¹ Structures Group, Engineering Department, University of Cambridge <http://www-civ.eng.cam.ac.uk/dsIZ/> [Accessed 09.12.05]

² Deployable structures, analysis and design (PDF) Gantes. C. J [http://pubs.nrc-cnrc.gc.ca/rp/rppdf/I02-025.pdf] Retrieved 09.12.05

TIMETABLE

PERIOD	STAGE	CONTENT	STUDENTS
WEEK CERO 26/04	Brief Presentation / Group allocation	Introduction & Discussion (CS)	All
WEEK ONE 29/04 30/04	(2 Days) Designing, Material Testing, Folding	1: Designing (CS) - full day 2: Material research / model testing (RD) - ½ day Lecture: "Deployable Structures" (CS) on 30/04	Individual Work
WEEK TWO 06/05 07/05	(2 days) Refinement, Scale up, Deployable	1: Designing (CS) - full day 2: Model testing / detailing (RD) - ½ day Lecture 2: "Transformable Frames in Architecture" (DMG) on 07/05	Group Work
WEEK THREE 12/05 14/05	(2 days) Fabrication / Process Presentation	1. Fabrication (1:1) (CS) - full day 2. Process Presentation (RD) +(DMG) - ½ day Lecture 3: "Learning from Butterflies" (CZ) on 12/05 Lecture 4: "Urban Corners" (MMB) on 12/05	Group Work
WEEK FOUR 18/05	Presentation Review	(CS) + (RD) + (DMG) full day	Group Work
JUNE 2010	London Architecture Festival 2010 www.lfa2010.org	Participation in the LFA Construction of the allotment for children in Southbank London (one week)	Group Work

Dr. Cristian Suau (CS)
Rachael Davidson (RD)
David Mc Gabon (DMG)
Carmello Zappulla (CZ)
Marga Munar Bauza (MMB)

EXTERNAL COLLABORATORS

David Mc Gabon (WSA), Carmello Zappulla (architect) and Marga Munar Bauza (WSA tutor)

LINKS

<http://www-civ.eng.cam.ac.uk/dsl/>
<http://www.designexplorer.net/>
http://www.ted.com/talks/theo_jansen_creates_new_creatures.html
<http://www.lfa2010.org/>
<http://www.robotecture.com/kdg/intro.html>
<http://www.reciclarq.org>
<http://www.tyrespace.com>

TEAM EMAILS

Dr. Cristian Suau suau@cardiff.ac.uk
Rachael Davidson rachaeldavidson@gmail.com
David Mc Gabon DavidMcGahon/sar5dm/CardiffUniversity
Carmello Zappulla carmelo@externalreference.com
Marga Munar Bauza MargaMunarBauza/sarmmb/CardiffUniversity