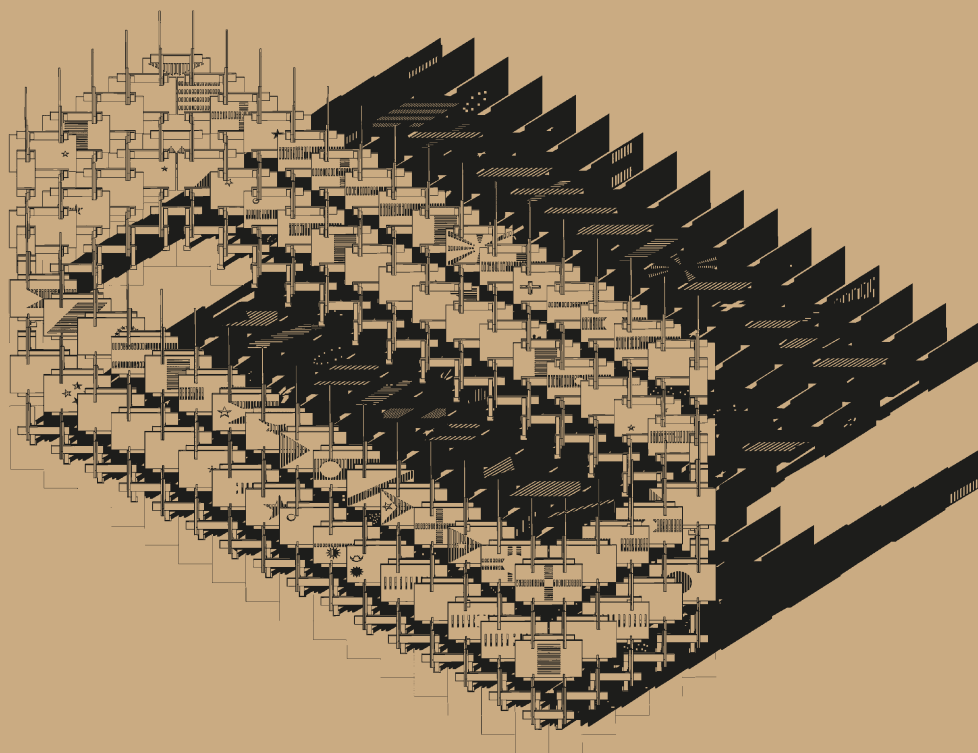


House of Flags



by AY Architects

Project Details

Practice:	AY Architects
Designers:	Yeoryia Manolopoulou and Anthony Boulanger Manolopoulou and Boulanger contributed equally to this project through their joint practice, AY Architects.
Title:	House of Flags
Output type:	Design
Function:	Public architectural installation for the celebration of the 2012 Olympics and Paralympics
Location:	Parliament Square, London
Client:	Mayor of London, Greater London Authority
Practical completion:	July 2012
Dates:	25 July – 12 September 2012
Construction cost:	£120,000
Area:	136m ²
Structural engineer:	Price & Myers
Fabrication:	Grymsdyke Farm
Printing:	Signet Signs
Installation:	Bolt & Heeks
Project manager:	ICON





1
**House of Flags in front
of House of Commons**
Photograph Nick Kane.

Statement about the Research Content and Process

Description

House of Flags was an architectural installation built in Parliament Square as part of London's 2012 Olympic celebrations. Research into the relationships between architecture, vexillology and international celebration underpins the project, which re-examines the Eameses' 'house of cards' at a larger scale.

Questions

1. What are the possible creative interactions between building and festivity, monument and event, architecture and political life, in the context of the unifying spirit of the Olympics and Parliament Square?
2. What visual languages can be shared between architecture and heraldry?
3. What are the possibilities and difficulties of using a modular, reusable and hand-demountable prefabricated assembly on the scale of a building?

Methods

1. Focused study of the historical and architectural context of Parliament Square.
2. Using design-led means to respond creatively to the GLA's and the Flag Institute's strict security and flag protocols.
3. Design research into flat-pack, demountable and reconfigurable modular systems that can be used across scales.
4. Research on methods for quick and safe assembly by hand with minimal impact on-site.
5. Drawing, model-making, 1:1 prototyping, colour studies, use of CNC and UV printing technologies.

Dissemination

Thousands of visitors saw the installation during the London 2012 Games. House of Flags was reviewed in *P.E.A.R.*, and featured in *Architectural Review* and on the opening page of *Time Out's* Olympics issue. It was widely discussed in architectural publications online, including *Domus*, *AJ Buildings*, *Design Boom*, *Arch Daily* and *Architecture Today*. It has been the subject of two films and featured in news channels across the globe, including ITV, China Post, Brazil TV and Greek newspapers.

Statement of Significance

Commissioned as part of the Greater London Authority's Wonder competition for architectural installations during the 2012 Olympics; winner of the commission for Parliament Square, the most prestigious of the programme's sites.

Introduction

House of Flags paid tribute to the diversity of the nations taking part in the 2012 Olympics and Paralympics. A total of 206 plywood panels, together depicting the flags of all participating nations, were combined like a jigsaw to create a small building on Parliament Square. The architectural piece expressed ideas of identity, diversity, unity and equality: it made a matrix portrait of multi-ethnic London and the cosmopolitan world. [fig. 1]

The project was commissioned by the Greater London Authority (GLA) after an invited international competition for the Mayor of London's 'Wonder Series of Incredible Installations'. It was installed on Parliament Square for seven weeks during the Olympic and Paralympic Games. House of Flags invited participation and created an engaging backdrop for thousands of visitors at one of the most significant tourist destinations worldwide. [fig. 2 & 3]

Aims and Objectives

1. House of Flags aimed to explore the intersections of architecture, vexillology, festivity and event. As an architectural intervention into a politically charged site, the project examined how a building can act as an imaginative mediator between political representation (flags, the Houses of Parliament) and public performance (the Olympics, the protests for which the Square is known, the everyday use of the square).
2. It aimed to create an engaging public backdrop that would encourage and enable participation, activism and celebration. For this reason it experimented with the use of provocative flag iconography on the 'skin' of the building: vibrant colours, symbols, patterns and perforations aimed to compose a multi-ethnic idea of unity, addressing the city and the world simultaneously.







2 (previous page)
Interlocked rows of
flag panels facing in
opposite directions
Photograph Nick Kane

3
The installation
proved to be
a popular backdrop
for visitors taking
photographs with
which to remember
the London Games
Photograph Nick Kane



4

4

The interactive public space generated by the installation

5

House of Flags placed alongside the peace camp on Parliament Square (occupied continuously since Jun 2001, initially by Brian Haw and now by Maria Gallastegui)



5

3. The project also sought to experiment with the design possibilities of a prefabricated, modular, stackable and demountable building logic that could be used at different scales from that of a board game to the construction of a full-scale building.
4. In the context of the GLA's vision for London 2012, the installation aimed to showcase London's design talent and innovation, and to create memorable and interactive experiences for its visitors. [fig. 4 & 5]

Questions

1. What are the possible creative interactions between building and festivity, between monument and event, in the historic, political and popular setting of Parliament Square and in the context of the unifying spirit of the Olympics?
2. What visual languages and ideas can be shared between architecture and heraldry?
3. What are the possibilities and difficulties of using a modular, reusable and hand- demountable prefabricated assembly on the scale of a building? [fig. 6–8]







7

6 (previous page)
House of Flags
 in the context of
 the surrounding
 buildings,
 north-west view
 Photograph Nick Kane

7
 Part view of the
 installation with
 St Margaret's Church
 in the background

8
 The untreated
 plywood panels
 match the colour
 of the weathered
 limestone of the
 Parliament building
 Photograph Nick Kane



Context

House of Flags is a freestanding structure measuring 17m long × 8m wide × 4.5m high. It is made of 206 FSC certified birch plywood panels and over 400 laminated connection components, of which there are eight different types. It stands on 42 pre-cast concrete foundational blocks. Panels are stacked with alternating orientation from row to row. The result is a complex layering of colour and pattern in an architectural assemblage on Parliament Square, seen against the imposing backdrop of the surrounding historic buildings.

The project contributes to design research in the field of contemporary public space by addressing two themes in particular:

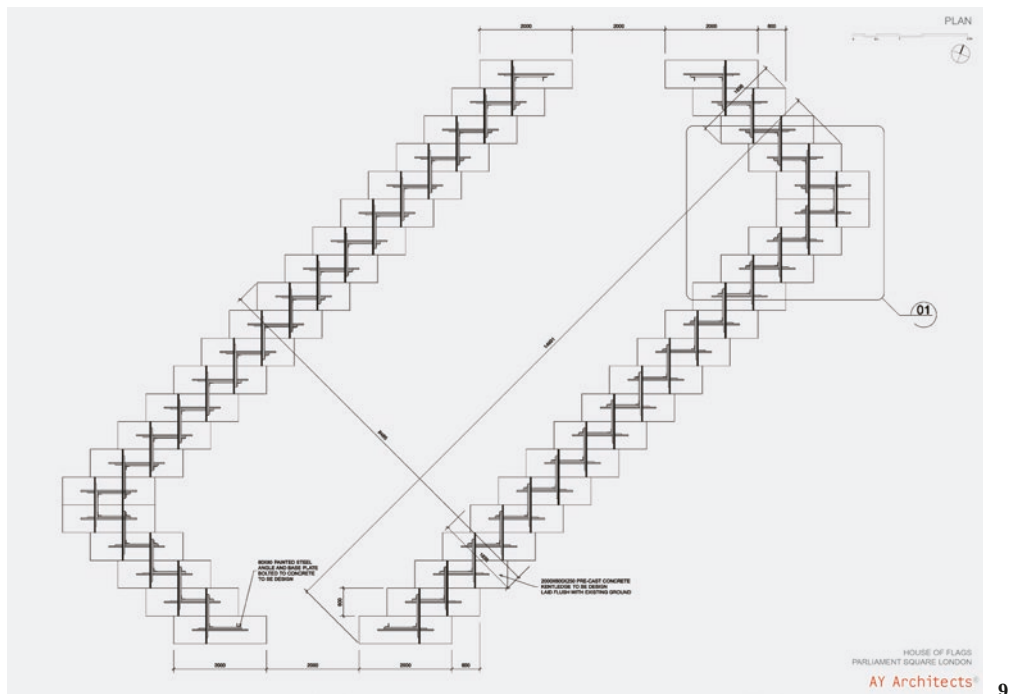
- the role of design-led pavilions in temporary urbanism and in the meaningful activation/use of public squares;
- experimental design and digital fabrication processes for demountable constructions, assembled through quick, handheld and low impact on-site methods (see *Methods*).
[fig. 9–13]

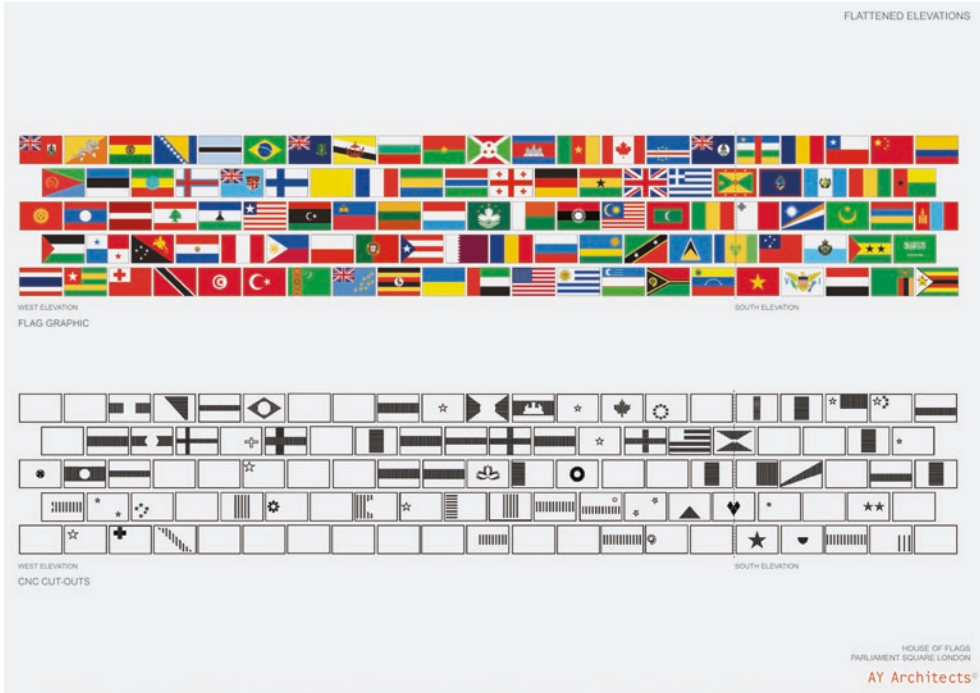
In addition the project refers explicitly to the ‘house of cards’ innovation as a precedent in design history and addresses the historical and political context of the site:

House of Cards

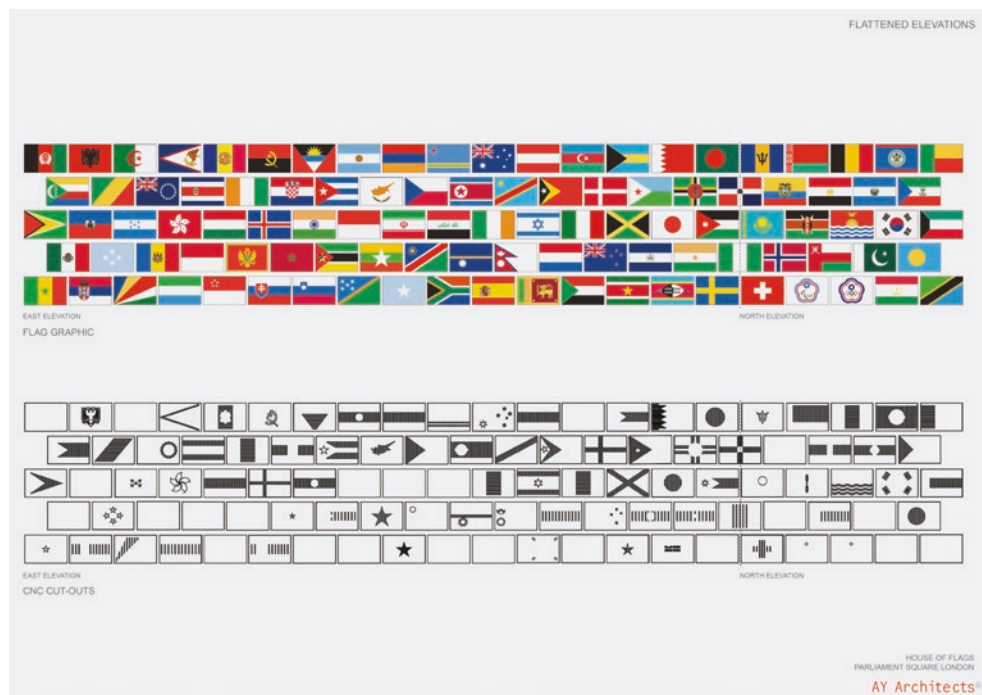
The project draws inspiration from Charles and Ray Eames’s House of Cards, a deck of picture cards with six slots, allowing for multiple possibilities for interlocking them. Research into the Eameses’ House of Cards (1952) was followed by also looking at their Giant House of Cards (1953) and Computer House of Cards (1970). AY Architects proposed an imaginative adaptation of this architectural logic to a House of Flags on the scale of a building, built of large plywood panels with four slots each.

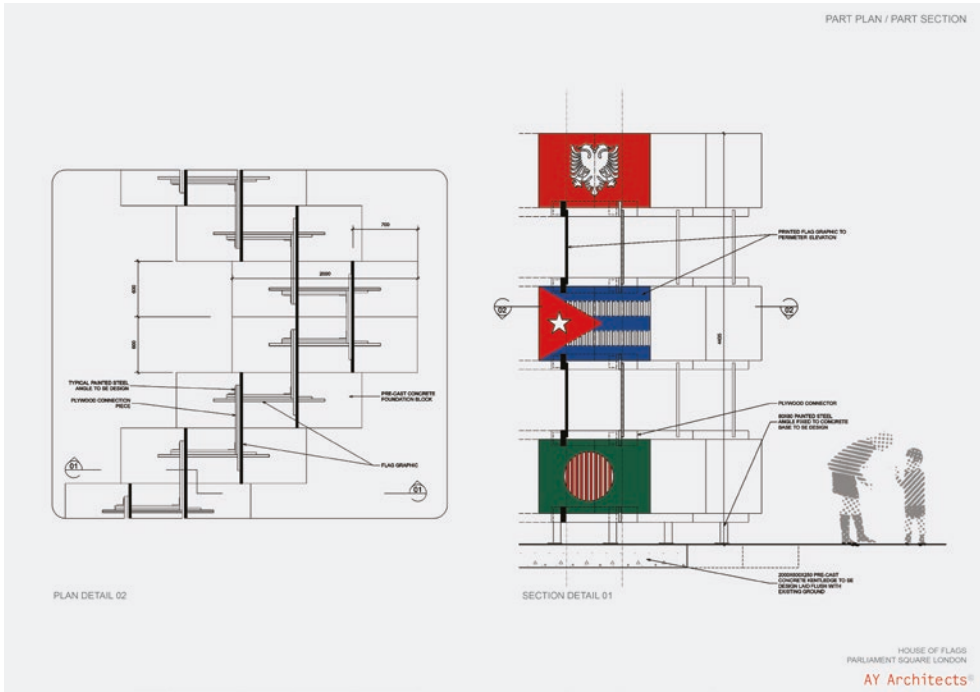
The House of Cards iconography was chosen by Eames to celebrate ‘familiar and nostalgic objects from the animal, vegetable, and mineral kingdoms’. AY Architects’ House of Flags depicted instead a political realm of nations, provoking a series of associations between the public and the constructed matrix of flag symbols. Visitors who came to Parliament Square searched the installation eagerly in order to find their own flag and take proud photographs in front of it.



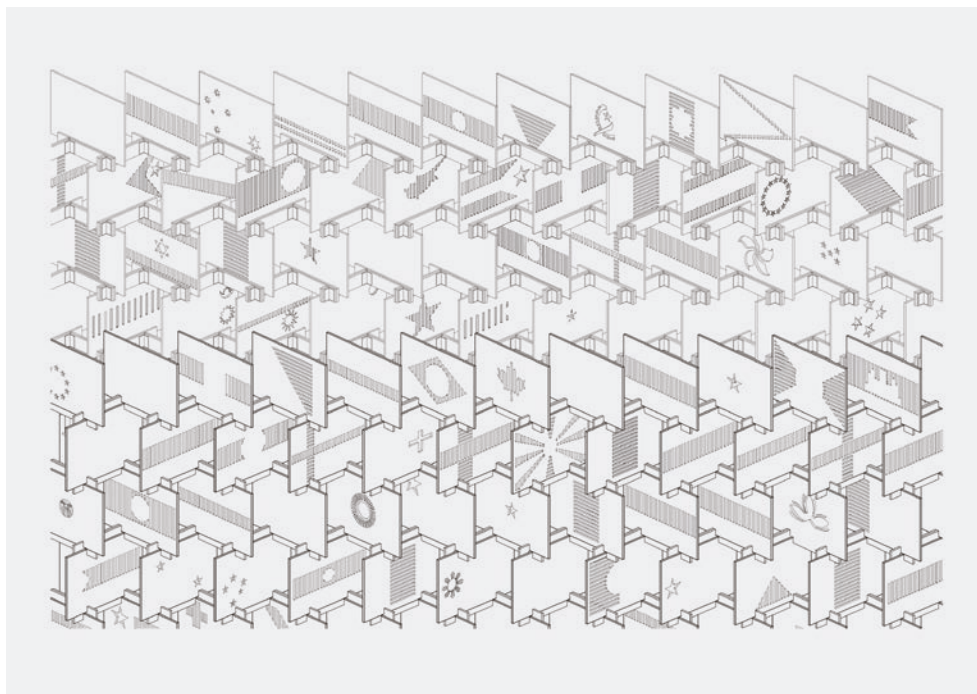


10
West and south
elevations with flag
graphics (top) and
CNC cut-outs (bottom)





12
Detail plan and
detail elevation
of the installation



13

13
3D model of
the installation,
partial aerial view
Drawing by Mark Rist

Initially AY Architects proposed House of Flags to be built at different scales and media and to be reconfigurable: as a physical board game, as an online interactive game, and as a flexible full-scale building construction that could be reconfigured according to children's decisions. Their proposal was that the board and online games could be distributed to primary schools across the country and that children could play in order to determine changes of the actual flag panel configurations. This reciprocal relation between game and building was meant to destabilise the political order of the flags, expressing concepts of non-hierarchy, equality and performativity in public space. After the end of the Paralympics the building could easily be recycled by distributing the flag panels back to the participating primary schools as souvenirs. [fig. 14–19]

Parliament Square

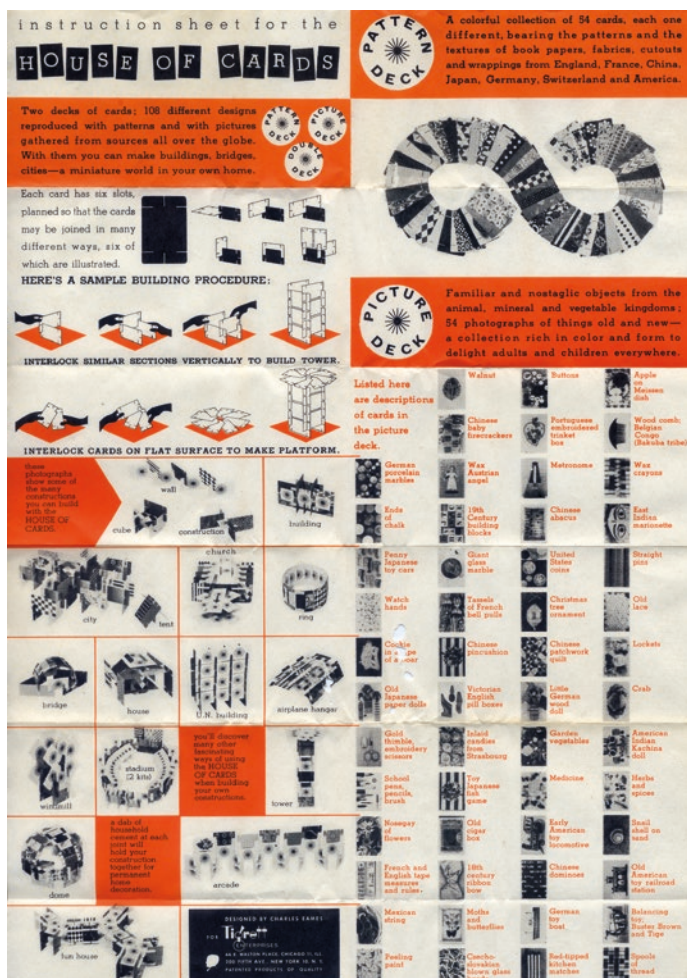
Parliament Square has great symbolic and heritage value to the British people and many others worldwide. It is an English Heritage Grade II registered garden of Special Historic Interest. In 1987 it was designated as the Westminster Abbey and Parliament Square Conservation Area and inscribed on the UNESCO list of World Heritage Sites.

Located in an area that encompasses the heart of British politics, Parliament Square is also the focus of public debate about the right to protest and exercise free speech. The GLA has been responsible for

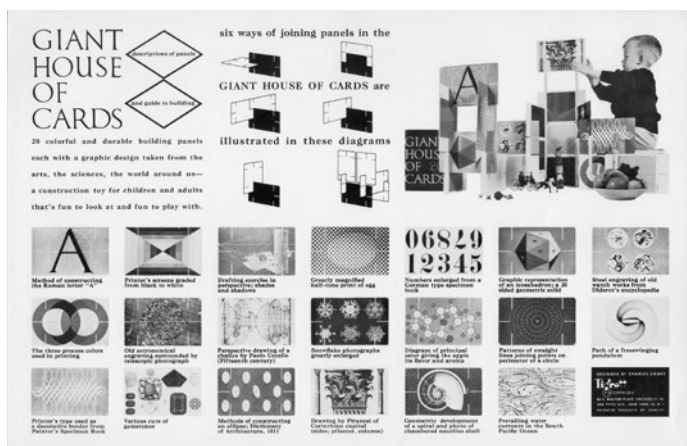
its management since 2000, recognising its political role but also its importance as a ceremonial place for historic events.

It is in this historic, political and ceremonial context that House of Flags was given this significant site. AY Architects presented the idea of a 'house of flags' to the GLA's jury, emphasising its poetic and political significance in the light of the Olympics but also its flexibility as an interlocking building system. They won the commission and initially the installation was to run for 800 metres down Park Lane. As AY Architects' design progressed, the GLA decided to move it to Parliament Square, a site that proved to be much more appropriate for the project and gave it additional significance: a House of Flags installed opposite the House of Commons.

The design acknowledges the World Heritage setting and highly political status of the square, historically charged by protests and demonstrations. Many complex issues had to be addressed that related to the paradoxical juxtaposition of people's natural desire to celebrate on the one hand, and the very strict rules concerning heritage, flag protocols, safety and security coming from the GLA and the Flag Institute on the other. Protests, graffiti and vandalism were a major concern for the GLA; as a result the installation had to be guarded 24 hours a day by two security guards. The panels had fire-resistant and anti-climb coatings, and had to be easily reproducible in case they were vandalised. [fig. 20–23]



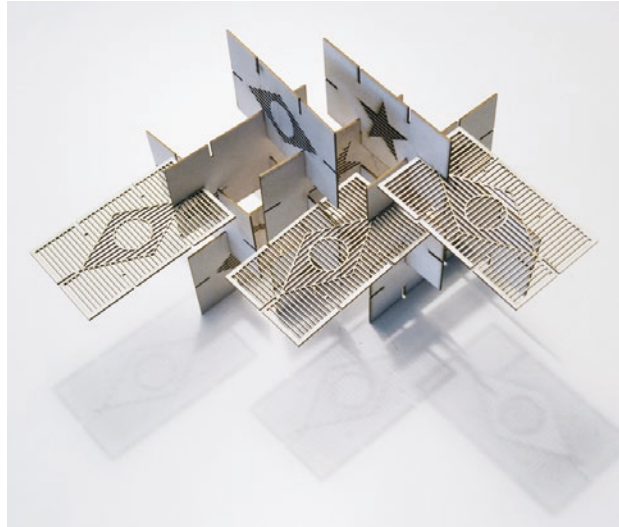
14



15

14
Instruction sheet from
the Eameses' House of
Cards, 1952.
© Eames Office, LLC.
www.eamesoffice.com
All rights reserved.

15
Instruction sheet from
the Eameses' Giant
House of Cards, 1953
© Eames Office, LLC.
www.eamesoffice.com
All rights reserved.



16

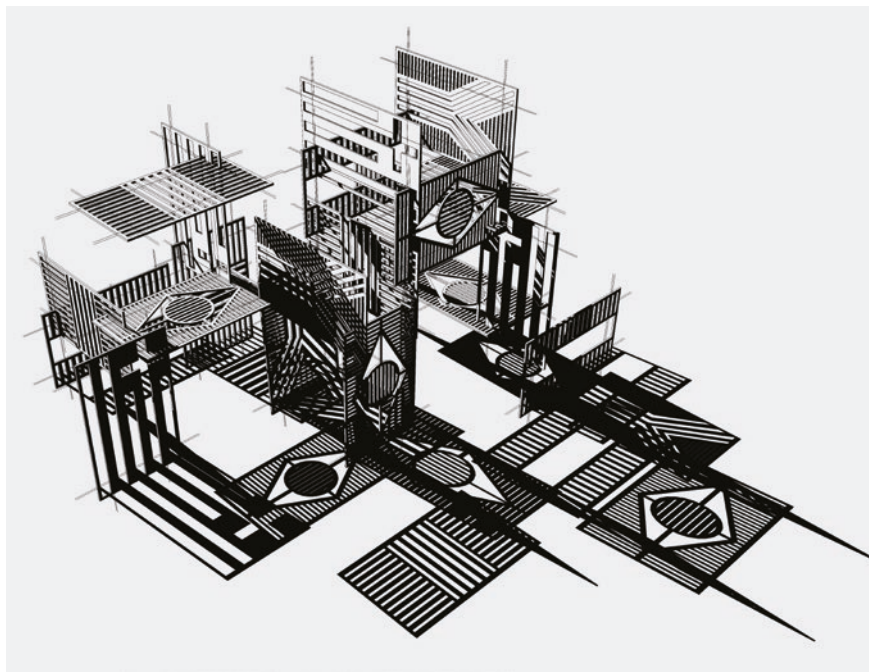
16
AY Architects' first
card model of the
'house of flags' idea

17 & 19
3D models at early
design stage, showing
random panel
configurations for
a flexible pavilion

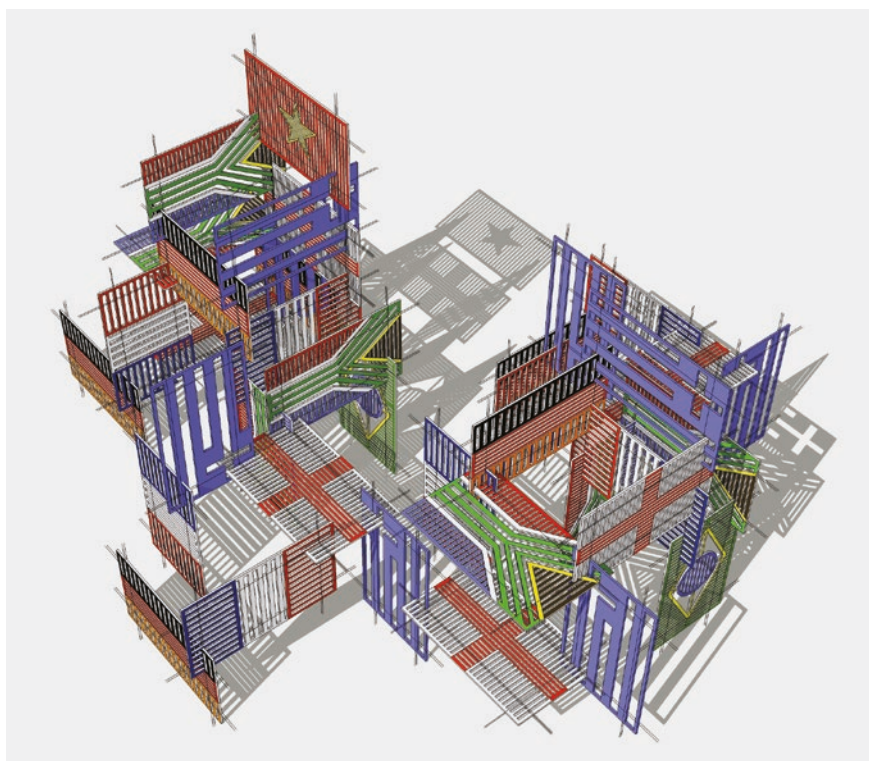
18
Card model of
the final panel
configuration as built
on Parliament Square



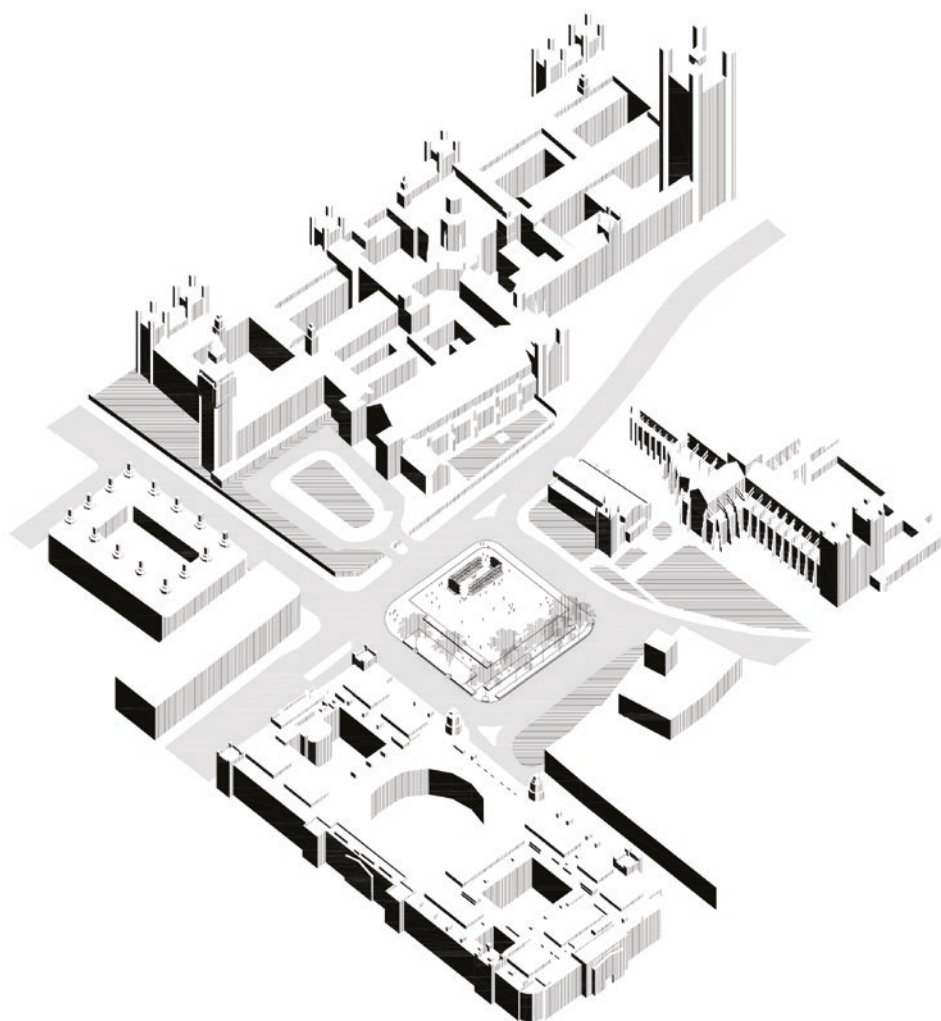
18



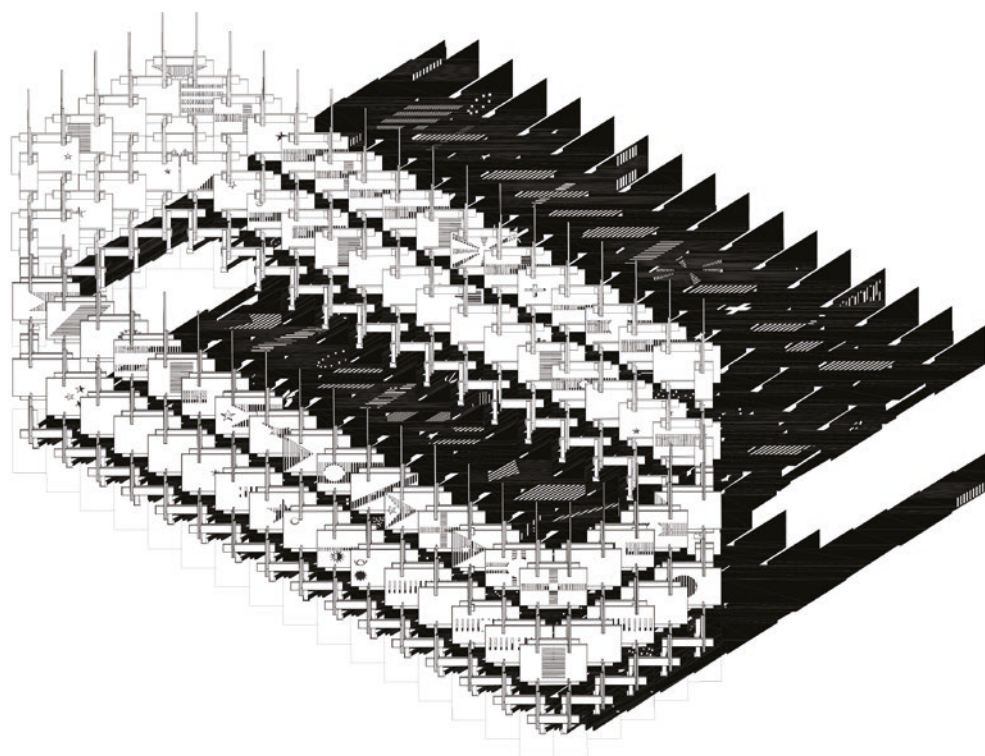
17



19



20
**Aerial view of
Parliament Square
and its surrounding
buildings**
Drawing by Mark Rist



21







23

22 (*previous page*)
House of Flags with
St Margaret's Church
in the background
Photograph Nick Kane

23
View of the
interlocking rows
of panels
Photograph Nick Kane

24
Panel prefabrication
in the CNC workshop
at Grymsdyke Farm



24

Methods

Focused study of the historical, political and architectural context of one of the most visited World Heritage sites

The exterior of the installation demonstratively produces a global image made up of the iconography of each flag, collating politics, graphics and architecture into one gesture. The interior is defined by an abstracted interpretation of the flags, creating a more unified experience. The untreated plywood finish of the internal elevations plays visually with the weathered limestone of the Houses of Parliament backdrop, while the vibrant colours of the external elevations inverts the exuberant colours of the interior of the Parliament.

During the day the structure works as a shadow modulator with the shadows of its perforations shifting from east to west.

Using design-led means to respond creatively to the GLA's strict security rules and the Flag Institute's protocols

The final composition presented the flags in alphabetical order from Afghanistan to Zimbabwe, never touching or intersecting. Each flag panel's perforations were carefully considered and designed to avoid potentially offensive cut-outs.

AY Architects worked with the Flag Institute, the world's leading research and

documentation centre for flag information, to determine exactly how the design of each panel could respect their protocols. According to the Flag Institute's international conventions, the flag panels could not intersect, so special connectors had to be devised. The overall flag arrangement should follow strict alphabetical order and certain symbols should not be perforated because they should never be seen in reverse. [fig. 25–27]

Design research into flat-pack, demountable and reconfigurable modular systems that can be used across scales

The structure is flat-pack, demountable and entirely reconfigurable. As a kind of large three-dimensional puzzle, House of Flags can be installed in different configurations of flag hierarchies at new locations.

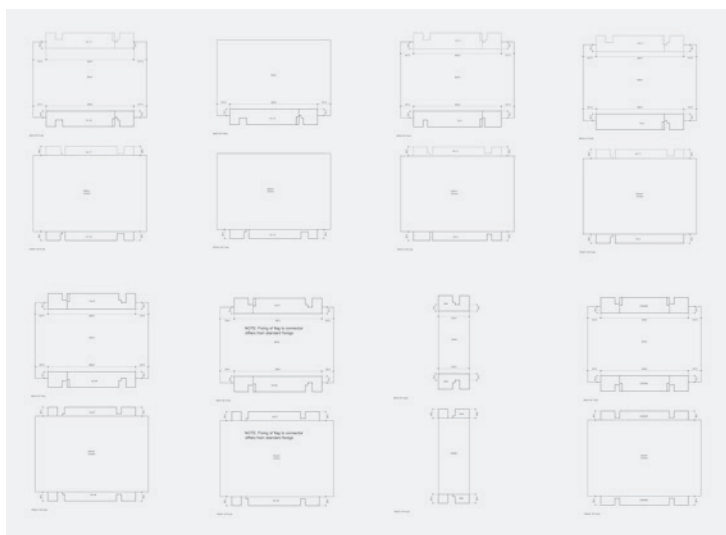
Initially AY Architects proposed House of Flags to be an interactive game for primary schools in the UK through which children could suggest different flag panel arrangements for the actual physical installation on Parliament Square. Due to budget limitations and the Flag Institute's strict protocols, the GLA requested that the architectural installation should be realised in a singular and fixed form, and that no alterations in the panels' placement should happen. [fig. 24, 28 & 29]



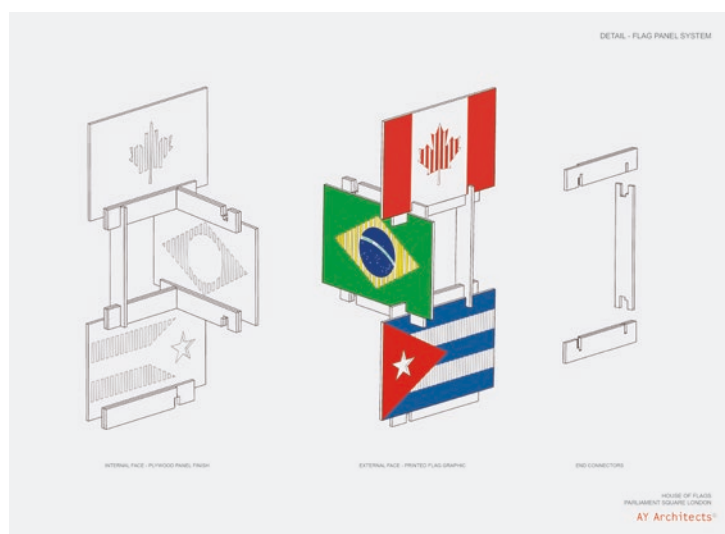
25

25
Stackable,
self-supported
and reconfigurable
flag panels

26
Typologies of
panel connections



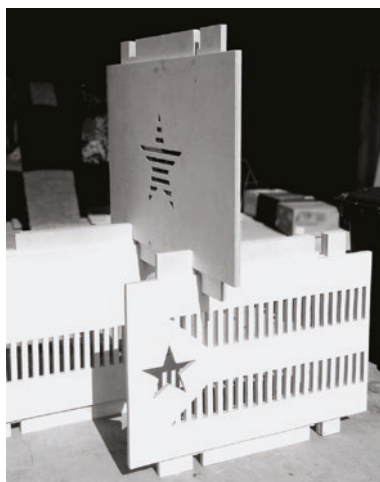
26



27



28



29

27
Axonometric drawing
of the connections
of the panel system

28
Flat-pack panels
under preparation
at Grymsdyke Farm

29
Prototype section
of the pavilion
built and tested at
Grymsdyke Farm



30
Installation of
panels by hand
was completed
in three days

30

31
During the ground
preparations, it was
discovered that the
underground tunnel
of the Jubilee Line
is too close to the
level of the square.
For this reason the
whole installation
had to move towards
the south-east corner
of the square.



31

Research on methods for quick and safe assembly by hand with minimal impact on-site

Full-scale prototype pieces were made and the process of building interlocked assemblages was tested at Grymsdyke Farm. The final installation of the panels on Parliament Square was built by hand by three people and took only three days (after the foundation blocks were set). If there had been fewer restrictions on the maximum number of panels that could be delivered each day, the installation time would have been even shorter.

AY Architects proposed that at the end of the installation the panels could be disassembled and distributed as souvenirs to primary schools and/or embassies. However, this was not an economic solution for the GLA, which opted to auction the entire installation but did not give sufficient time to this process. There was no budget to store the installation until a collector/buyer was found, and so in the end the flags were recycled: Grymsdyke Farm took 100 flags to re-use for making furniture and a new stair in their workshop; AY Architects stored about 30 flags to allow for the possibility of a re-erection of a small section of the installation; several flags were taken as souvenirs by members of the GLA and Icon's project management team; and the rest of the flags were recycled by the main contractor.
[fig. 30–32]

Drawing, model-making, 1:1 prototyping, studies of colour application, use of CNC and UV printing technologies

The development of the project was based on the individual study of each original flag design, precisely determined by the Flag Institute, and on a detailed adaptation of this design to slightly simpler panel graphics and perforations. Drawing in 2D and 3D, model-making and building prototypes at Grymsdyke Farm were continual and instrumental processes.

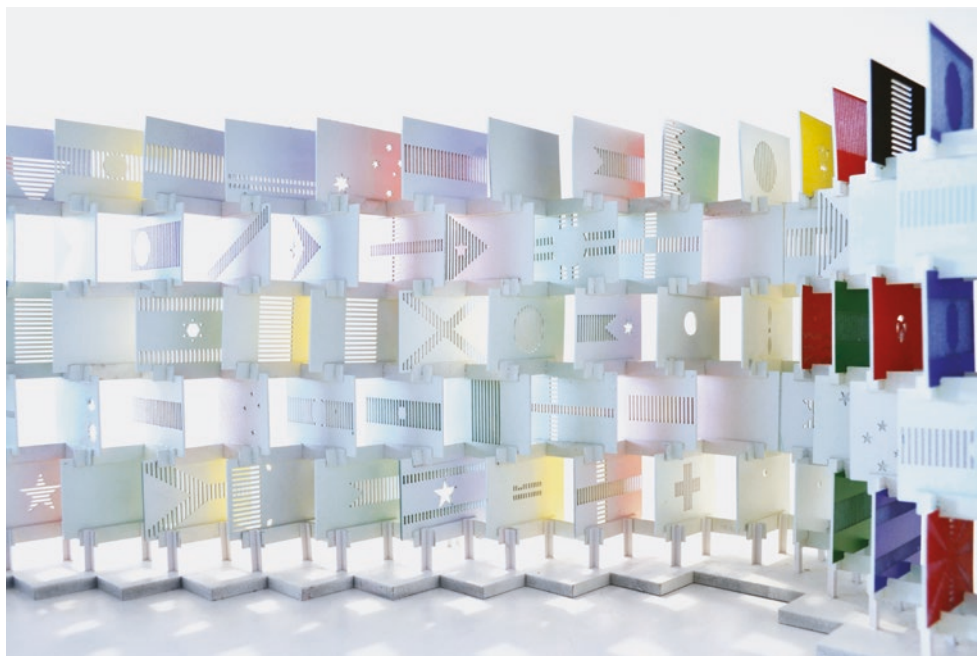
The panels were CNC cut and the majority of them have cut-outs of symbols. The top panels are more perforated and lighter whereas the bottom ones are more solid and therefore heavier. The graphic of each flag was printed directly on the plywood panels using a large format UV flatbed printer, which resulted in a crisp overlay of color on the timber grain surface. The back of each flag panel was left to show the natural finish of the plywood. When the sunlight was sharp, soft layers of colour light, produced by the vibrancy of the colour-printed panels, were reflected on the natural plywood panels next to them. This colour light radiation was tested beforehand on scaled models. [fig. 33–35]



32

32
The monochrome
interior of the
installation surrounded
by panels in untreated
plywood
Photograph Nick Kane





34

34
Colour shades
produced by the
vibrant flag graphics
on the back of the
adjacent panels;
view of card model



35

35
Colour shades
on the untreated
plywood panels
produced by the
vibrant flag graphics
of the adjacent
panels; view of
realised installation



36



37

36 & 37
A celebratory
backdrop,
capturing thousands
of portraits

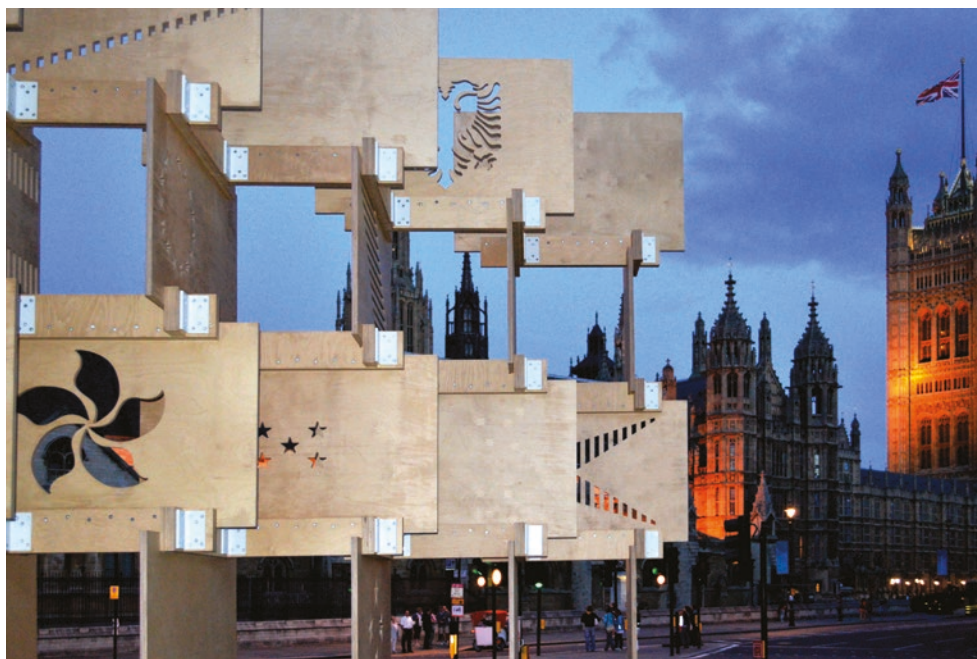
Dissemination

House of Flags was a highly visible installation throughout the London 2012 Olympics and Paralympics, visited and photographed by thousands. It invited participation and created an engaging backdrop for visitors who explored the flag panels with excitement until they found their own flag and proudly photographed themselves in front of it.

House of Flags was also widely disseminated in the architectural and popular media, including in *Architectural Review*, *P.E.A.R. Paper for Emerging Architectural Research*, *Domus*, *Arch Daily*, *Architecture Today*, *Design Boom* and *Time Out*. It featured in news websites and TV channels across the globe in different languages, including ITV, China Post, Brazil TV and Greek newspapers.

The GLA made a unique film about it, entitled: 'Mayor of London Presents a Summer Like No Other: House of Flags, Parliament Square', 2012.

A time lapse of the installation process is available online: <https://vimeo.com/54247765> [fig. 36–38]



38

38
Night view of the
installation on
Parliament Square,
looking through
the perforations

Related publications by the researcher(s)

pp. 44–47

AY Architects, 'House of Flags', *Top Space & Art IV*. Kong Kong: Artpower International, 2013. 144–147.

pp. 48–49

AY Architects, 'House of Flags', *P.E.A.R. Paper for Emerging Architectural Research* (Oct 2013).

Related writings by others

Print reviews

pp. 52–53

'Folio: Vexilology at Parliament Square in London', *Architectural Review* 1387 (Sep 2012): 106.

pp. 54–55

Vasiliki Athanasopoulou, 'The House of Flags in London', *Peloponnisos* (26 Aug 2012): 8–9.

p. 56

'Your city at a glance: Putting the squares in Parliament Square', *Time Out London* (2 Aug 2012): 8.

p. 57

Philip Tabor, 'House of Flags', *P.E.A.R. Paper for Emerging Architectural Research* (Oct 2013).

Online reviews

p. 58

'Top 10 outdoor exhibitions' in London', *Time Out* (9 Aug 2012).

pp. 59–60

'A showcase of the Bartlett's teaching staff work', *Architecture Today* (4 Aug 2012): www.architecturetoday.co.uk/?p=24504

p. 61

'House of Flags', *Architectural Review* (28 Aug 2012): www.architectural-review.com/folio/folio-review/house-of-flags/8634814.article

pp. 62–68

'House of Flags: An installation celebrating multicultural London', *Designboom* (11 Sep 2012): www.designboom.com/weblog/cat/9/view/23547/house-of-flags-an-installation-celebrating-multicultural-london.html

pp. 69–77

'AY Architects: House of Flags', *Domus* (19 Sep 2012): www.domusweb.it/it/notizie/2012/09/19/ay-architects-house-of-flags.html

pp. 78–83

Alison Furuto, 'House of Flags installation / AY Architects', *ArchDaily* (3 Oct 2012): www.archdaily.com/275727/house-of-flags-installation-ay-architects

Bartlett Design Research Folios**ISSN 2753-9822****Founding editor:****Yeoryia Manolopoulou****Editors:****Yeoryia Manolopoulou,****Peg Rawes, Luis Rego****Content:****© the authors****Graphic design:****objectif****Typesetting:****Axel Feldmann, Siaron Hughes,****Alan Hayward****Proofreading:****Wendy Toole**

Bloom

by Alisa Andrasek
and José Sanchez

House of Flags

by AY Architects

***Montpelier Community
Nursery***

by AY Architects

Design for London

by Peter Bishop

2EmmaToc / Writtle Calling

by Matthew Butcher
and Melissa Appleton

River Douglas Bridge

by DKFS Architects

Open Cinema

by Colin Fournier
and Marysia Lewandowska

The ActiveHouse

by Stephen Gage

Déjà vu

by Penelope Haralambidou

Urban Collage

by Christine Hawley

Hakka Cultural Park

by Christine Hawley,
Abigail Ashton, Andrew
Porter and Moyang Yang

House Refurbishment

in Carmena
by Izaskun Chinchilla
Architects

***Refurbishment of
Garcimuñoz Castle***

by Izaskun Chinchilla
Architects

Gorchakov's Wish

by Kreider + O'Leary

Video Shakkei

by Kreider + O'Leary

Megaframe

by Dirk Krolkowski
(Rogers Stirk Harbour
+ Partners)

***Seasons Through the
Looking Glass***

by CJ Lim

Agropolis

by mam

Alga(e)zebo

by mam

Chong Qing Nan Lu Towers

by mam

ProtoRobotic FOAMing

by mam, Grymsdyke Farm
and REX|LAB

Banyoles Old Town

Refurbishment
by Miàs Architects

***Torre Baró Apartment
Building***

by Miàs Architects

Alzheimer's Respite Centre

by Níall McLaughlin
Architects

Bishop Edward King Chapel

by Níall McLaughlin
Architects

***Block N15 Façade,
Olympic Village***

by Níall McLaughlin
Architects

Regeneration of

Birzeit Historic Centre

by Palestine Regeneration
Team

PerFORM

by Protoarchitecture Lab

55/02

by sixteen* (makers)

***Envirographic and
Techno Natures***

by Smout Allen

Hydrological Infrastructures

by Smout Allen

Lunar Wood

by Smout Allen

Universal Tea Machine

by Smout Allen

British Exploratory

Land Archive

by Smout Allen
and Geoff Manaugh

101 Spinning Wardrobe

by Storp Weber Architects

Blind Spot House

by Storp Weber Architects

Green Belt Movement

*Teaching and Learning
Pavilion*

by Patrick Weber

Modulating Light and Views

by Patrick Weber