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:** 136m²  

**Structural Engineer:** Price & Myers  

**Fabrication:** Grymsdyke Farm  

**Printing:** Signet Signs  

**Installation:** Bolt & Heeks  

**Project manager:** ICON
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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.
Interlocked rows of flag panels facing in opposite directions
Photograph Nick Kane

The installation proved to be a popular backdrop for visitors taking photographs with which to remember the London Games
Photograph Nick Kane
The interactive public space generated by the installation.

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).
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]
House of Flags
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House of Flags
in the context of
the surrounding
buildings,
north-west view
Photograph Nick Kane

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

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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.
Plan of the architectural installation
West and south elevations with flag graphics (top) and CNC cut-outs (bottom)
East and north elevations with flag graphics (top) and CNC cut-outs (bottom)
Detail plan and detail elevation of the installation
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 Instruction sheet from the Eameses’ House of Cards, 1952.

15 Instruction sheet from the Eameses’ Giant House of Cards, 1953

(Images have been omitted due to copyright restrictions.)
AY Architects’ first card model of the ‘house of flags’ idea

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

Card model of the final panel configuration as built on Parliament Square
Aerial view of Parliament Square and its surrounding buildings

Drawing by Mark Rist
Axonometric drawing of the installation
Drawing by Mark Rist
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House of Flags with St Margaret’s Church in the background
Photograph Nick Kane

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View of the interlocking rows of panels
Photograph Nick Kane

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Panel prefabrication in the CNC workshop at Grymsdyke Farm
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]
Stackable, self-supported and reconfigurable flag panels

Typologies of panel connections
Axonometric drawing of the connections of the panel system

Flat-pack panels under preparation at Grymsdyke Farm

Prototype section of the pavilion built and tested at Grymsdyke Farm
Installation of panels by hand was completed in three days.

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.
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]
The monochrome interior of the installation surrounded by panels in untreated plywood
Photograph Nick Kane
Colour shades produced by the vibrant flag graphics on the back of the adjacent panels; view of card model
Colour shades on the untreated plywood panels produced by the vibrant flag graphics of the adjacent panels; view of realised installation.
A celebratory backdrop, capturing thousands of portraits
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.


A time lapse of the installation process is available online: https://vimeo.com/54247765 [fig. 36–38]
Night view of the installation on Parliament Square, looking through the perforations
Related publications by the researcher(s)

pp. 44–47

pp. 48–49

Related writings by others

Print reviews

pp. 52–53

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Online reviews

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pp. 59–60
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‘AY Architects: House of Flags’, *Domus* (19 Sep 2012):
www.domusweb.it/it/notizie/2012/09/19/ay-architects-house-of-flags.html

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www.archdaily.com/275727/house-of-flags-installation-ay-architects
Bloom
by Alisa Andrasek
and José Sanchez

House of Flags
by AY Architects

Montpellier Community Nursery
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Design for London
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Envirographic and Techno Natures
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Green Belt Movement Teaching and Learning Pavilion
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