House Block

Claire McAndrew
AUAR Labs

Gilles Retsin
AUAR Labs

Mollie Claypool
AUAR Labs

Clara Jaschke
AUAR Labs

Kevin Saey
AUAR Labs

Danaë Parissi
AUAR Labs

1   *House Block*, prototype of a two-storey dwelling unit in Clapton, East London (James Harris, 2021)

An Experiment in Discrete Automation

House Block was a temporary housing prototype in East London, UK from April to May 2021. The project constituted the most recent in a series of experiments developing Automated Architecture (AUAR) Labs' discrete framework for housing production, one which repositions the architect as curator of a system and enables participants to engage with active agency. Recognizing that there is a knowledge gap to be addressed for this reconfiguration of practices to take form, this project centred on making automation and its potential for local communities tangible. This sits within broader calls advocating for a more material alignment of inclusive design with makers and 21st Century making in practice (see, for example, Luck 2018).

House Block was designed and built using AUAR's discrete housing system consisting of a kit of parts, known as Block Type A. Each block was CNC milled from a single sheet of plywood, assembled by hand, and then post-tensioned on site. Constructed from 270 identical blocks, there are no predefined geometric types or hierarchy between parts. The discrete enables an open-ended, adaptive system where each block can be used as a column, floor slab, wall, or stair—allowing for disconnection, reconfiguration, and reassembly (Retsin 2019). The democratisation of design and production that defines the discrete creates points for alternative value systems to enter, for critical realignments in architectural production.

PRODUCTION NOTES

Architect:	AUAR
Status:	Built
Site Area:	52 sq. m.
Location:	Clapton, London, UK
Date:	2021
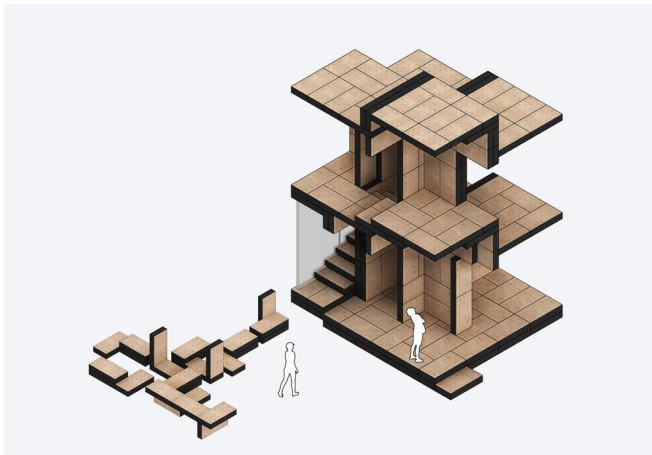
2   House Block 'Takeover' - A Catalyst for Community Making
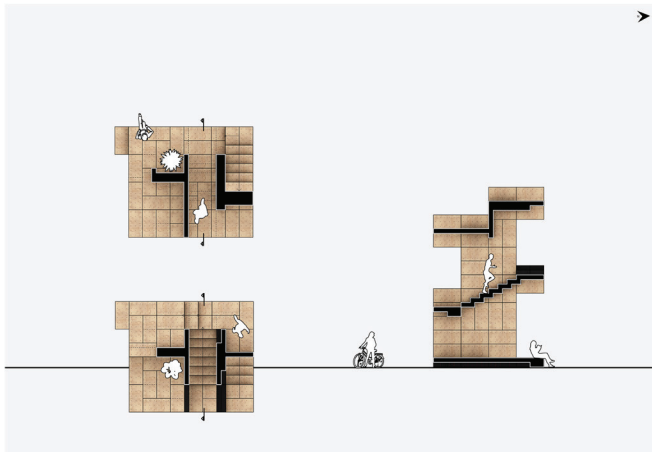
3   *House Block* plans & section

4   Concept rendering of *House Block* further development

The two-storey, 52m² structure was built on the site of a former playground in Clapton over a three-week period. It was delivered in partnership with London Borough of Hackney, as part of an ongoing discussion and shared interest in alternative methods of affordable housing delivery and development of small plots. *House Block* made tangible the social and economic possibilities of decentralized modes of digital fabrication and reduced building syntax. In partnership with New City College's Hackney campus, a work experience programme invited students who would normally not engage with automation to explore how it may benefit their practice. Through the assembly of 320 blocks, seventy construction, carpentry, multi-skills students/apprentices participated in dialogue about the potential of localised automation (such as CNC milling and robotic assembly) with short production chains that upskill local labour and create new kinds of jobs for more inclusive, just futures.

A series of 'takeovers'—small-scale, creative, experimental, explorations—designed and built by four project partners, The Building Centre, Gonzalo Herrero Delicado + Pati Santos, Hackney Wick Underground and L U C I N E, extended critical understandings of automation. Activated by responses to the housing prototype, the takeovers enabled live experimentation with *House Block*. Fifty blocks supported the delivery of weekly takeovers over the course of one month. Local residents participated in their production, a process of gaining lifelong skills and agency, along with experiential learning of part-to-whole relationships within a local context. A public programme of talks and events provided further entry points, reaching over 200 members of the public on the potential of discrete automation for the commons, domesticity, sustainability, new housing strategies and policies.

House Block is one experiment in becoming an activator for the discrete. The discrete depends on more than academic knowledge and designerly ways of knowing. It demands participation to redefine established positions and the development of practical skill sets to access digital modes of production (Claypool 2019). *House Block* has offered

5   Interior View (James Harris, 2021)

House Block McAndrew et al.

6   House Block Side View (James Harris, 2021).

7   *House Block* as seen from one of the site entrances (James Harris, 2021)

8   *House Block* Front Elevation (James Harris, 2021)

a tangible demonstration of the viability of rethinking long production chains in architecture and using 'digital materials' (Popescu and Gershenfeld 2009) at scale. Our modes of engagement have offered a lens into the value of decentralized processes—elevating horizontal forms of collaboration in a local setting for more equitable, afford-able, and sustainable housing realities. Whilst advocating for lived experience as a form of expertise, this project illustrated the freedom part-to-whole relations bring in generating conversations and design ideas for new modes of living that work for "everyone's unique difference" (Luck 2018, 116). It offers access to an alternate housing reality, a demonstration of the necessity of material engagement for the transformation of architectural design and construction practices.

REFERENCES

Claypool, Mollie. 2019. "Our Automated Future: A Discrete Framework for the Production of Housing." *Architectural Design* 89 (2): 46–53.

Luck, Rachael. 2018. "Inclusive Design and Making in Practice: Bringing Bodily Experience in Close Contact With Making." *Design Studies* 54: 96–119.

9   Detail of House Block's Upper Floor (James Harris, 2021)

Popescu, George A. and Neil Gershenfeld. 2009. "Digital Materials." *MIT FabCentral*. Draft publication. http://fab.cba.mit.edu/classes/961.09/04.13/DM.draft.pdf

Retsin, Gilles. 2019. "Bits and Pieces: Digital Assemblies: From Craft to Automation." *Architectural Design* 89 (2): 38–45.

.

IMAGE CREDITS

Figure 1, 5-11: © James Harris, 2021

All other drawings and images by the authors

Claire McAndrew is a social scientist that works across architecture and practices of care. She focuses on new frameworks for participation—drawing upon contemporary theory, research and debate around architecture, technology, community, and public engagement in the production of the built environment. Her writing and practice consider the use of co-design methodologies to shift social practices, inform public policy, and enact more care-full capacities. Claire is Director of Public Engagement and Co-Director of AUAR Labs at The Bartlett School of Architecture, UCL.
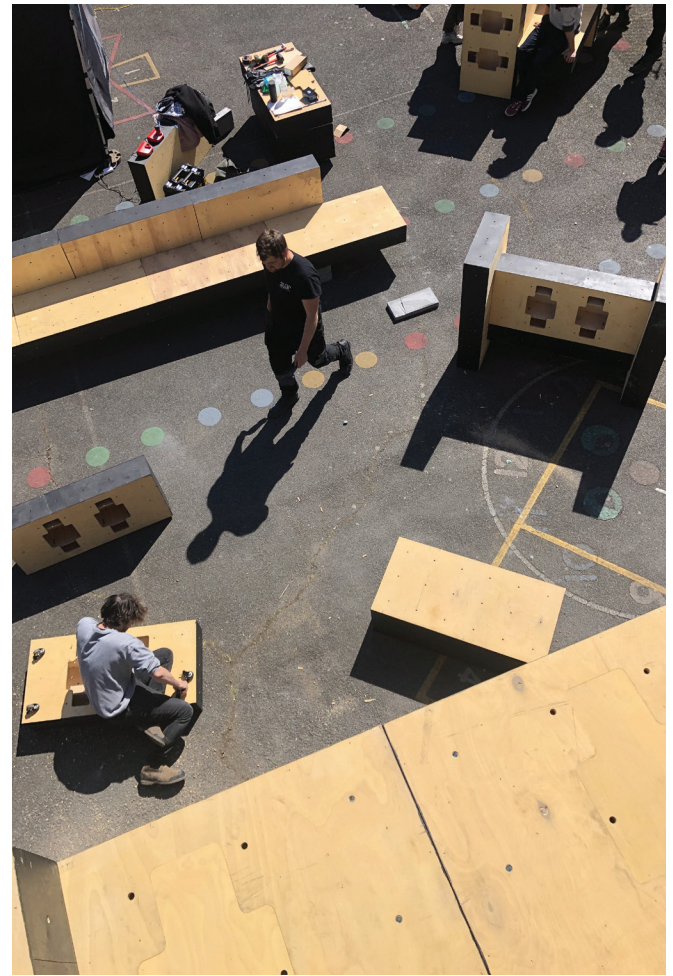
Gilles Retsin is an architect, educator and thinker working at the intersection of computation, fabrication, and architecture. His work has been internationally recognised through awards, lectures and exhibitions at major cultural institutions such as the Museum of Art and Design in New York, Royal Academy in London and Centre Pompidou in Paris. He edited an issue of *Architectural Design (AD)* (Wiley 2019) and co-authored *Robotic Building: Architecture in the Age of Automation* (Detail Edition 2019). Gilles is Associate Professor in Architecture, Co-Director of AUAR Labs and Programme Director of MArch Architectural Design at The Bartlett School of Architecture, UCL.

10 Construction of House Block in Clapton, East London (James Harris, 2021).

11 Building a House Block 'Takeover' (James Harris, 2021).

Mollie Claypool is a leading architecture theorist focused on issues of social justice highlighted by increasing automation in architecture and design production, and the potential of auto-mation in architecture and the built environment to provide more socially engaged and environmentally sustainable ways of designing and building. Mollie is co-author of *Robotic Building: Architecture in the Age of Automation* (Detail Edition 2019) and author of the SPACE10 report "The Digital in Architecture: Then, Now and in the Future" (2019). She is also Associate Professor in Architecture at The Bartlett School of Architecture, UCL. At The Bartlett she is Co-Director of AUAR Labs.

Clara Jaschke is an architectural designer and researcher specializing in digital tools and technology. She holds a Master in Architecture from the University of Innsbruck as well as a MRes in Architecture & Digital Theory from the Bartlett School of Architecture, UCL, where she is now a Teaching Fellow in addition to being a Researcher at AUAR.

Kevin Saey is an architect and researcher in automation, digital fabrication and computational design with a background in game design. Kevin studied Digital Arts and Entertainment at University College West Flanders, MSci in Architecture at KU Leuven and MArch Architecture at The Bartlett School of Architecture, UCL.

Danaë Parissi is an architect interested in bringing together the traditional discipline of architecture with cutting edge compu-tational theory to explore new interdisciplinary paths of design. She has completed her integrated MArch at the NTUA School of Architecture and an MSc in Architectural Computation at The Bartlett School of Architecture, UCL.