

wonky brick, n

This research maps landscapes of material re-use in building and construction in the UK - from sites of demolition, policy documents, and material banks, to the grading of so-called 'wonky bricks', and the future certification of re-use through retrofit materials at testing centres. The research identifies verbs of material reuse that intercept building waste

before it is condemned to landfill, and the future infrastructures which are emerging in opposition to the waste paradigm. The narrative of this film is built from re-used fragments of my conversations, site visits, field-notes, poems, quotes, and analysis. Here we follow some alternative low-carbon material practices - local, circular, and strategic. We start and end with the K-BRIQ specified by YAA Projects for the Design Researchers in Residence Solar display at the Design Museum. *

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Designing for reuse

Nana
Biamah-
Ofosu

Nana Biamah-Ofosu is an architect, writer and director of YAA Projects, an architecture, design and research practice dedicated to exploring counter-histories, material and diasporic culture. YAA Projects designed the Solar display at the Design Museum.

In conversation with Nana Biamah-Ofosu: Designing the Solar Display with materials in transit

'Low-tech materials have an aspirational quality, but the legacy of globalization hinders their appreciation' explains Biamah-Ofosu.

Inspired by roadside assemblies and ad hoc stacking observed by Biamah-Ofosu on a visit to Ghana, the plinths in the Solar display are built from Kenoteq's compressed K-BRIQS.

The K-BRIQS, made from reclaimed construction materials, are stacked. As materials in transit, they are deployable to new locations after their use at the design museum.

Built around ideas of impermanence, acknowledging exhibition design as a temporary material assemblage, YAA projects test ideas of reuse and non-destructive construction principles, that might translate into more permanent projects.

Familiar in the context of West African architecture, compressed bricks or blocks are materials transformed by solar energy through drying. The hue, texture, and ingredients of these bricks are derived from the material landscapes they have been extracted.



Fig. 1

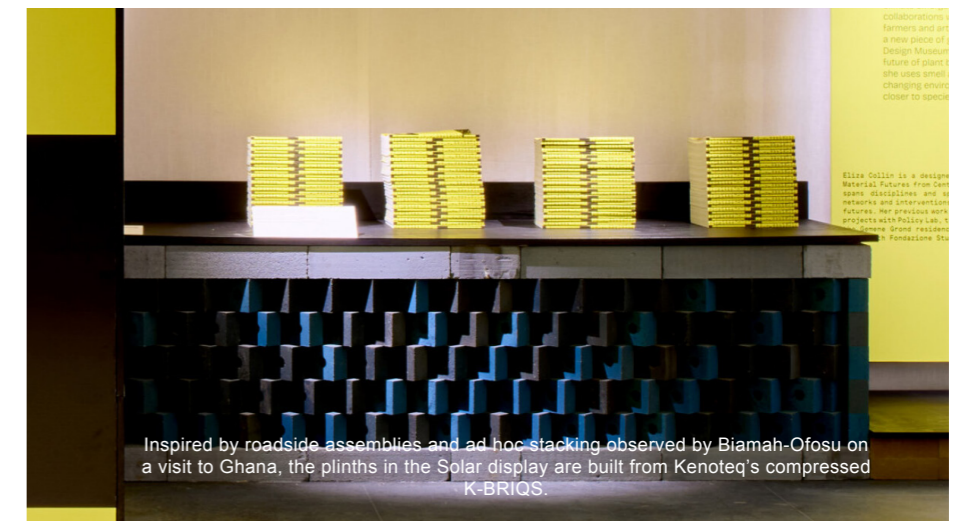


Fig. 2

Fig. 1 Nana Biamah-Ofosu outside YAA Projects, London, 2024

Fig. 2 'Solar Exhibition' 3D Design by YAA Projects, Design Museum, 2024

Borrowing Bricks

Rebecca Gremmo

Rebecca Gremmo is an arts project manager and curator with a specialism in low-carbon exhibition production. Rebecca project managed the Solar display build and will take it down when it closes at the end of September.

In conversation with Rebecca Gremmo: borrowed bricks and mapping material decisions at The Design Museum's Solar display.

As the exhibition producer and materials curator, Rebecca tests logistics for material reuse. From borrowing bricks, to circulating material inventories for future custodians, Gremmo works with products or suppliers who value material circularity. This informs design with reuse in mind. Working in a decentralized way, she establishes informal infrastructures to reduce the embodied carbon of exhibition design.

We might think of these decisions as antidotes to the challenges of waste in the industry today.

This blue brick is borrowed, On loan from Edinburgh and stacked in-situ at the Solar display.

These materials have been specified, selected, temporarily assembled - for disassembly, and return.

The brick, passes from maker to institution, Stacked in a plinth For object display

The brick is re-classed from Grade A to Grade B through handling and exchange.

Structurally unchanged, it lessens in value. The brick becomes wonky Ripe for reuse.



Fig. 3

SOLAR - materials for reuse

Image	Material	Description	Dims	Other info	Quantity	Allocated
	plywood, 25mm	one face painted with lakeland woodwash, black. the back panel is girted and glued and the board have a 15mm deep, 45° groove cut at the front (used to hold labels in place), we can cut off the edges to remove these elements, or supply the material as is	725mm deep (750 inc. backboard) 2090 2267 1025 x 2 1025 x 2 2440 1024 1630 x 2 1488 x 2 1515 x 2 1840 x 2		new dims column	
	calson block	M44 Calson Standard Anstated Concrete Block Grey approx 7kg per block	440mm x 100mm x 215mm	https://www.brick.com	400	
	kanika board, white, 10mm	White honeycomb card with brown cone. Used as backing for fabric, stapled into the timber frame. the marked edges can be cut off, reducing size of board by approx 50mm	1220 x 2440 mm		approx 20	
	PAIR timber	used for linen wall support frames	TBC		TBC	
	linen, unweashed	off-white, used for wall lining, attached to timber with str. 2800mm wide, cut into approx 2500mm drops			approx 20m cut into 2.5m drops (with variations)	all
	linen, stone washed	off-white, used for wall lining, attached to timber with str. 1470mm wide, cut into approx 2500mm drops			approx 65m cut into 2.5m drops (with variations)	all
	K Brics			https://www.k-brics.com	NOTE: a fee will be required, the bricks are currently on loan and if not returned the purchase needs to be completed. Between £0.75 to £1.50 per brick depending on quantity, please contact us to discuss your requirement and costs.	

From borrowing bricks, to circulating material inventories to find

Fig. 4

Fig. 3 Rebecca Gremmo, Solar Display producer, 2024
Fig. 4 'SOLAR - Materials for reuse' Excel inventory

Finding form

Henry
Krokatsis

Henry Krokatsis is an artist who works with discarded materials. His works test our assumptions about function, value and status.

In conversation with Henry Krokatsis: Form follows find at Queensrollahouse.

“The Georgian pine floor comes from Montague square, from the Swiss embassy, that was being ripped out. The glass was coming from a glass toughening factory round the corner, called tough glaze. That’s all waste glass that had been cut wrong and can’t be recut.

The steelwork all comes from a workshop building that carried the airline for the pneumatic tools.

A lot of the doors came from a builder who was based round the corner, who worked mostly in Belgravia, where they couldn’t have skips.

The sidelights come from a 1950s cruiser ship. The large central lights come from a Japanese naval ship.

That’s about it really, Everything else is just found”

Form follows find

Found, recovered,
reclaimed by skipload
or
carload
Georgian pine from
the Swiss embassy,
re-laid
remnants of
Victorian buildings
gutted in West
London,
spindles, doors, floors,
airline for pneumatic
tools becomes
balustrades,

Windows reconfigured
partitions, entrances,
and openings for twenty-
two artists’ studios.

navigation lights,
scaffolding, seating,

no drawings for collect
and build

Cleaned of old
fastenings, hardware

Fixtures adapted
waste salvaged for
walls

from a destination of
landfill

Queensrollahouse is a social sculpture of found material. The twenty-two studios built by Krokatsis are housed in the envelope of the former Rolls Royce factory in Park Royal - the U.K.’s largest industrial estate.

Park Royal is defined by the Greater London Authority (GLA) as a Strategic Industrial Location (SIL). The SIL designation, prioritises these sites as the main reservoirs of industrial activity of all kinds, meaning spaces for waste management and logistics often sit alongside workshops, film, and artists’ studios. Material banks such as Re-made in Park Royal and ReCollective, are an example of a new infrastructures popping up in these industrial areas.

For practitioners intercepting free streams of discarded material, the biggest ‘cost’ is time and labour, which diminishes the value of reclaimed materials for specification more widely.

Can we value the careful dismantling of a master de-crafter as we value the constructions of a



Fig. 5



Fig. 6

master-builder?

Fig. 5 Henry Krokatsis in Queensrollahouse, Park Royal, 2024
Fig. 6 The rooftop, Queensrollahouse, Park Royal, 2024

Storing to redistribute

Resolve
Collective

Resolve is an interdisciplinary design collective working between art, architecture, engineering, and technology to address social issues.

In conversation with Resolve Collective: rehearsing material redistribution practices at the Material Store

Working in (and outside of) institutions, Resolve practice material reuse - they redistribute materials, skills, and knowledge to the local communities they operate within.

The Material Store, a six month residency at Camberwell Space UAL, is the concretisation of this infrastructure that has been tested, improvised, and rehearsed through the Collective's early work in South London, where sheds, gardens, and garages became intermediary material banks for local groups - an idea scaled to the Tate Liverpool, redistributing its contents as it prepares to move buildings.

Building materials and 'ideas for reuse' are gathered, stored, and shared for free.

Stored and displayed materials will be part of a digital index, tagged with 'material passports' that hold material-specific information and self-help tutorials to support DIY interventions by local community groups or individuals.

The Material Store is an opportunity to democratise material practices and rehearse forms of tactile labour - sharing, teaching, and making. Material reuse becomes the means of connecting communities with their local material resources in an accessible, public, and unsanctioned way.

→ Fig. 12.

"The materials we were dropping off were from Nicholas Okwulu who runs PemPeople and the Livesey Exchange on Old Kent Road, he is clearing out the old LEX1 as they finish the build for LEX2.

MATERIAL STORE
EVERYTHING MUST GO

NAME _____
CONTACT _____ DATE _____

R/D	ITEMS	QUANTITY

R = RESERVE FOR PICK-UP | D = DELIVERY REQUIRED
CONTACT @MATERIAL_STORE2024 FOR MORE INFO

Fig. 11

→ Fig. 13.

Then the materials we were picking up were going to 3EIB who are building a space called SPACE FOR SWANA in Stoke Newington, which is trying to facilitate and support the creative work of Palestinian and other SWANA artists/creatives."

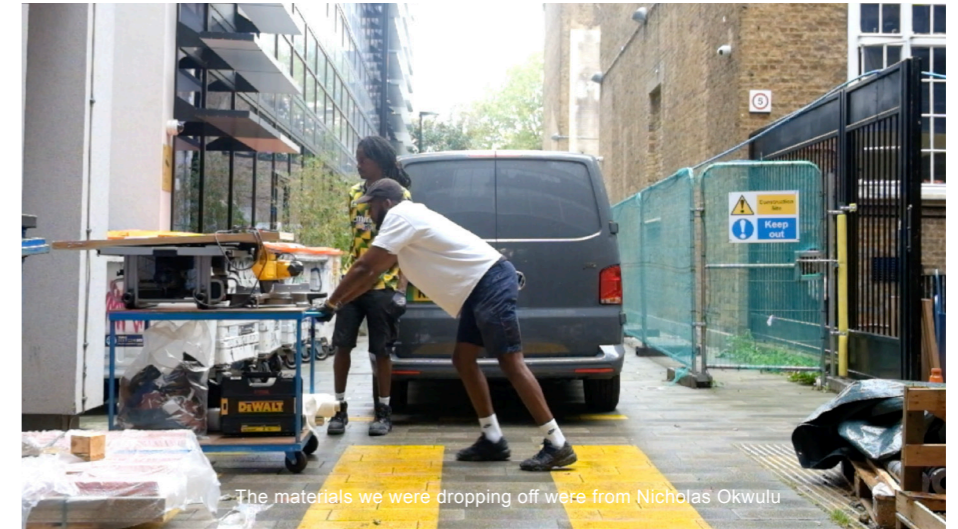


Fig. 12



Fig. 13

Fig. 11 'Material Store Everything Must Go' material reservation form, Resolve
Figs. 12, 13 Picking up and dropping off materials at The Material Store, Resolve Collective, 2024.

Networking

reuse

Ruth Lang

Dr Ruth Lang is an architect, writer and curator, whose research explores alternative strategies and positions which can be adopted in pursuit of the practice of architecture.

In conversation with Ruth Lang: reforming policy through sites of material reuse, Low Carbon Housing Report

How can we prescribe 'wonky bricks'* as a remedy for low-carbon housing?

*Here is an expanded definition of 'wonky bricks' as non-virgin materials, intercepted waste streams, and practices of reclaim: The sites of material reuse located in Ruth Lang's report, titled 'Low-carbon homes: Housing for the green transition' hinge on changing legislation, changing the narrative, and changing supply chains.

The report identifies legislative networks between the stakeholders of material reform that could support climate-resilient construction:

councils, designers, builders, developers, universities, regulators, suppliers, insurers, and manufacturers

Fostering these links is central to innovative housing policy which address both the housing and climate crises by forming strategies for reusing and recycling materials.

1. Changing the supply chains: A provision of new material testing and certification hubs in each local authority. Formerly in the hands of the local council, the infrastructure for testing construction materials has been privatised. Investing in this infrastructure would speed up the availability of certified and insured low-carbon materials which could enter local supply chains.

2. Changing the narrative: The aim, to de-risk low-carbon construction, will be informed by bioregional data on climate, carbon calculations, and material waste streams and change the current narrative around the specification of bio-based and reclaimed low-carbon materials.

3. Changing legislation: Provision of training and education in low-carbon construction and deconstruction for the current and future workforce. Making materials accessible for reuse - the recognition and need for intermediary organisations and spaces who can harvest, refurbish, categorise, store, and test material from salvaged buildings set for demolition and industrial waste streams.



Fig. 15



Fig. 14

Fig. 14 Low Carbon Homes: Housing Construction for the green transition, Dr Ruth Lang, 2024
Fig. 15 'S80s (demolition applications) received in 2024' Building Control, Islington Council, 2024

Certifying retrofit

Energy House, University of Salford

Energy House is a research facility at the University of Salford – an environmental laboratory testing the energy efficiency of building materials and systems for current climates, and future climactic extremes.

“The greenest building is the one that already exists.”
Carl Elefante, former president of the American Institute of Architects

August 05 2024, overcast, 20°C

The chamber held at 6°C.

A pipe-filled container for a two-up, two-down Victorian terrace, squeezed underneath.

One hundred years after it was built at the end of a street in Salford, it is dismantled wonky brick by wonky brick. It has been rebuilt on Joule Terrace, a fictional

street, in the university’s research laboratories.

Leaky Victorian terraces comprise 1 in 25 of the UK housing stock in England and Wales.

Extracted from its familiar context, researchers wrap the building in retrofit jackets.

The house is frozen, thawed, soaked, and heated, exposed to wind, rain, snow, and solar radiation - the full spectrum of weather on this island.

Data is harnessed for an anti-demolition solution, certifying low-carbon retrofit options ready to be adopted by the market and architects for specification.



The house is frozen, thawed, soaked, and heated, exposed to wind, rain,

Fig. 16



Extracted from its familiar context, researchers wrap the building in retrofit jackets.

Fig. 17

Fig. 16 Solar heaters, Energy House 1.0, University of Salford, 2024
 Fig. 17 Retrofit materials under testing, Energy House 1.0, University of Salford,

Making

Bricks

Sam Chapman

Sam Chapman is the Co-Founder and Executive Director of Kenoteq - an Edinburgh research factory decarbonising brick manufacture.

In conversation with Kenoteq: reforming construction waste into low-carbon bricks.

Circling back to the borrowed brick, here is the no-bake recipe for the reformed K-BRIQ:

Old bricks, rubble, mortar, and plaster board,

the ingredients of levelled buildings and condemned concrete structures

enters the waste handler's facility.

It is graded, sorted, washed, and screened.

The waste exits as aggregates

reclaimed by Kenoteq at this pivot-point -

It is mixed and compressed from the landscape of construction waste.

The bricks, cured in a chamber, are ready to build within a day after arriving to the factory as processed waste.

A compressed brick and a compressed production process.

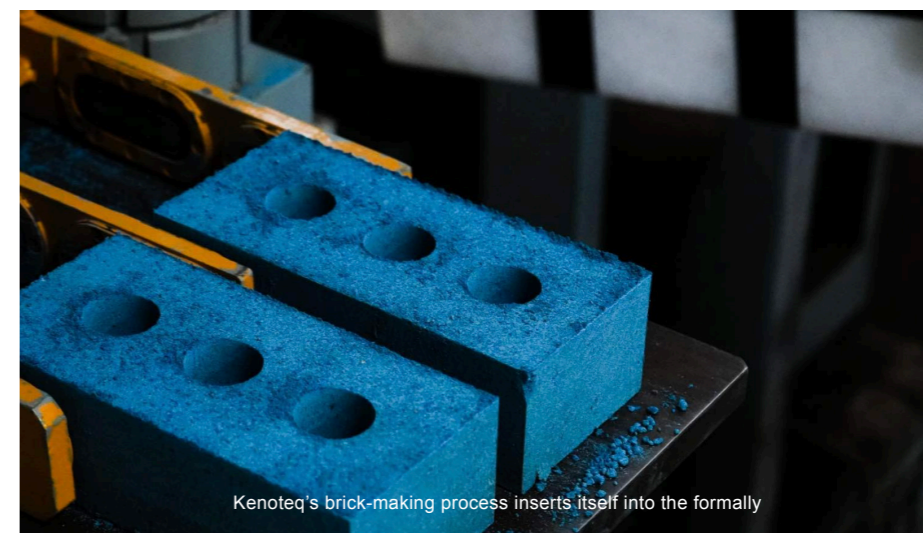
Kenoteq's brick-making process inserts itself into the formally established world of the waste handler.

The reclaimed waste, never in short supply, reduces the bricks embodied carbon by **95%** of a traditional clay brick.



Circling back to the borrowed brick,

Fig. 18



Kenoteq's brick-making process inserts itself into the formally

Fig. 19

Fig. 18 Kenoteq's K-Briq, Solar display, the Design Museum 2024

Fig. 19 Kenoteq's K-Briq, compressed from construction waste aggregates

Reforming future material mapping

What is a future of master de-crafters: careful disassembly of non-destructive building systems, material passports, public record of sites set for demolition - synthesised infrastructures for material reuse.

How do we reform the way in which we use and value reclaimed materials in construction?

How can the building sector eliminate the distance between end-use and landfill?

Whilst a carbon audit makes transparent the carbon 'cost' of construction materials by mapping the embodied carbon from extraction, via processing, to the delivery at its end-use - the carbon audit negates to map the immaterial decisions that prevent a material from ending up in landfill. A destination we - the public, building industry, manufacturers, and governments are resigned to ignore within the current systems of

design and disposal. From provenance to 'end-use' the trajectory of construction materials is linear by convention.

How can we map a future of re-use into building and construction materials? From non-destructive building details, material loan stores, and design for deconstruction, how do we plan a trajectory of reuse into a building material's lifespan. This research has identified verbs of reuse: Words of action that can be inserted in replacement of end-use and landfill creating a circular and closed-loop system.

Wonky bricks, ripe for reuse.

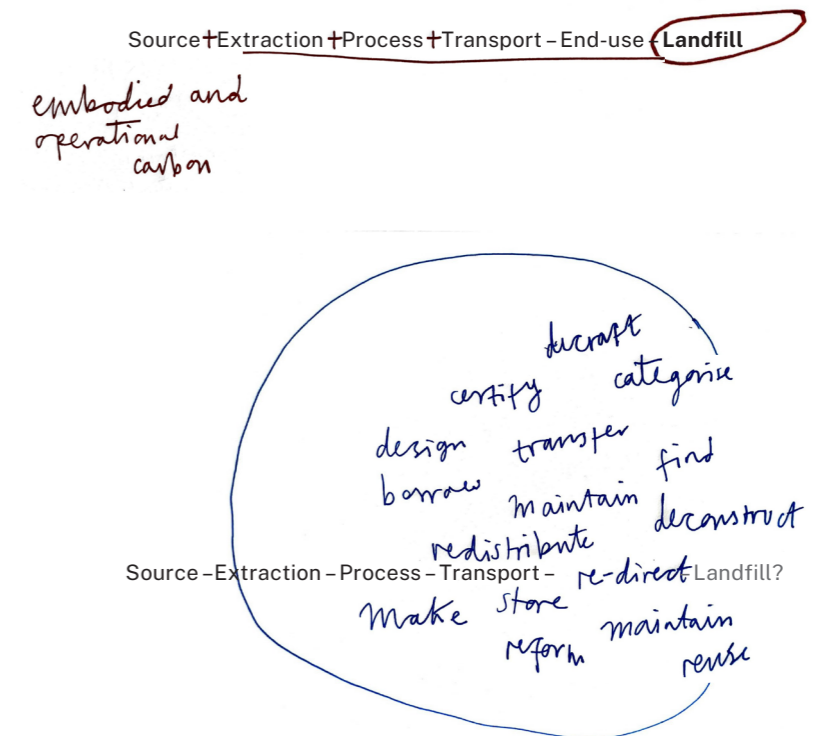


Fig. 20 Contemporary material mapping: carbon audits
Fig. 21 'Future material mapping' sites of reuse: wonky brick

borrowing

borrowing, v

1. The action of borrow, v.¹ (senses I.1, I.2); taking on loan, taking at second-hand, etc.; also concrete, that which is borrowed.

rebecca grømmo

Rebecca Grømmo is an arts project manager and curator with a specialism in low-carbon exhibition production. Rebecca project managed the Solar display build and will take it down when it closes at the end of September.

certify, v

transitive. To make (a thing) certain; to guarantee as certain, attest in an authoritative manner; to give certain information of.

design, v

1. To produce (a design) (design, n. II.7b). transitive. (a) To make drawings for the construction or creation of (something, as a building, object)

nana biamah-ofosu

Nana Biamah-Ofosu is an architect, writer and director of YAA Projects, an architecture, design and research practice dedicated to exploring counter-histories, material and diasporic culture. YAA Projects designed the Solar display.

resolve collective

Resolve is an interdisciplinary design collective working between art, architecture, engineering, and technology to address social issues.

energy house

Energy House is a research facility at the University of Salford—an environmental laboratory testing the energy efficiency of building materials and systems for current climates, and future climactic extremes.

find, v

An act or instance of finding; a discovery, e.g. of minerals, treasure, archaeological remains, etc. 1776-

henry krokatsis

Henry Krokatsis is an Artist who works with discarded materials. His works test our assumptions about function, value and status.

make, v

transitive. To produce (a material thing) by combination of parts, or by giving a certain form to a portion of matter, to manufacture; to construct...

network, v

To cover (something) with a network.

ruth lang

Dr Ruth Lang is an architect, writer and curator, whose research explores alternative strategies and positions which can be adopted in pursuit of the practice of architecture. She is the author of Low-carbon homes, housing for the green transition.

redistribute, v

To distribute something again or differently, now frequently in order to achieve greater equality.

reform, v

To put into another and better form; to amend or improve by alteration of form, arrangement, or composition; to correct errors or remove...

reuse, v

To use for a second or further time; to make use of again.

wonky brick

ReCollective

ReCollective is a material agency who direct construction materials away from waste streams and towards communities.

store, n

A stock (of anything material or immaterial) laid up for future use. Phrase, to lay in a store.

store, v

transitive. To furnish, supply, stock (a person, place, etc.) with something.

sam chapman, kenoteq

Sam Chapman is the Co-Founder and Executive Director of Kenoteq—an Edinburgh research factory decarbonising brick manufacture.

transfer, v

To convey or take from one place, person, etc. to another; to transmit, transport; to give or hand over from one to another.

waste, v

Useless expenditure or consumption, squandering (of money, goods, time, effort, etc.) In unfavourable sense: To spend, consume, employ uselessly or without adequate result.

waste, adj

If materials, incidental products, etc.: Eliminated or thrown aside as worthless after the completion of a process; refuse.

wonky brick, n

non-virgin materials, intercepted waste streams, practices of material reclaim



thanks to

future observatory, the design museum