



Welcome to

Queen's University's annual Sustainable Construction Conference

Materials Matter: A Deep Dive into Material Innovation, Circularity and Low Impact Design

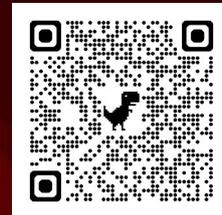
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Programme



Past Recordings



(Scroll to bottom of webpage)

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QUEEN'S
UNIVERSITY
BELFAST

Duncan Baker-Brown

BakerBrown, RIBA Council, University of Brighton

Buildings as Material Banks,
Reuse & Circularity

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Designing Out Waste

Buildings as Material
Banks, Reuse &
Circularity'.

Presented by
Duncan Baker-Brown ARB RIBA FRSA
BakerBrown Studio & University of Brighton



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CHATHAM HOUSE [Sign in or create account](#)

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Independent Thinking: Are Donald Trump’s tariffs the end of globalization?

Jason Furman, Dame DeAnne Julius and David Lubin discuss the impact of Donald Trump’s ‘liberation day’ tariffs on the United States and the global economy.

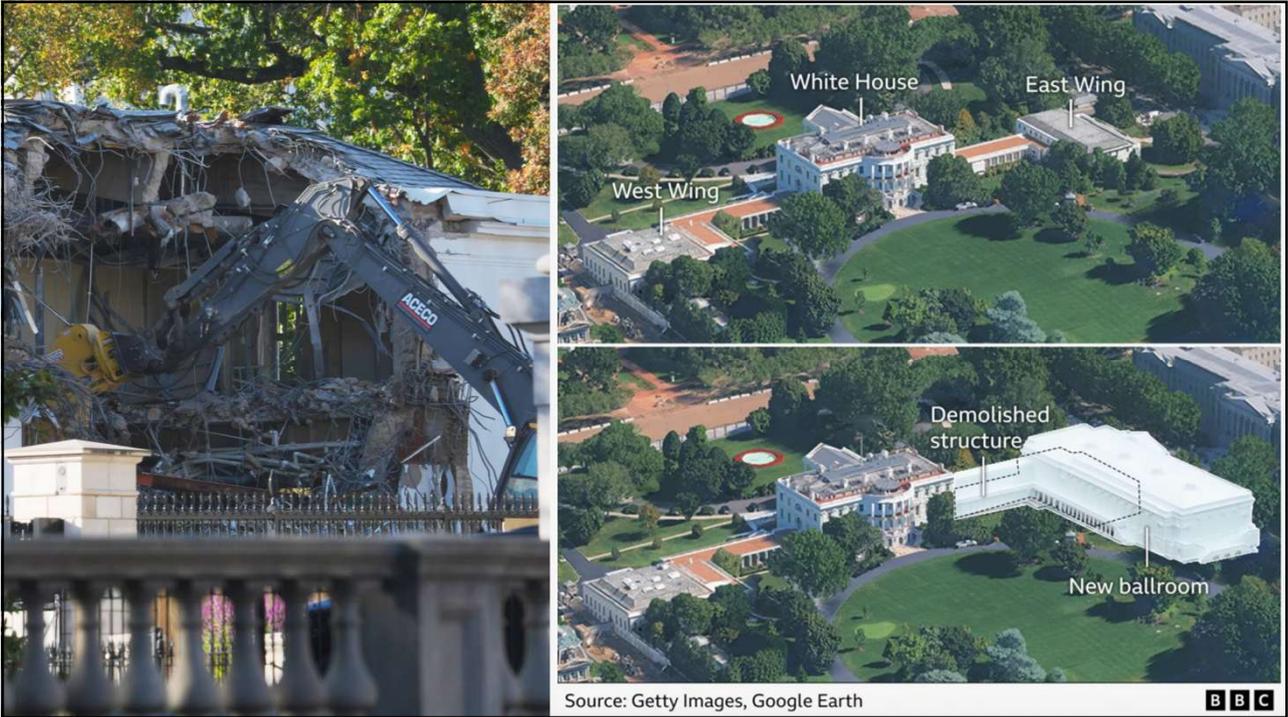
Katya Adler: EU talks tough on Trump tariffs in hope of U-turn

Country	Tariffs Charged by the U.S.A. (including 25% tariff on steel and aluminum)	U.S.A. Discouraged Reciprocal Tariffs
China	67%	34%
European Union	39%	20%
Vietnam	90%	46%
Taiwan	64%	32%
Japan	46%	24%
India	52%	26%
South Korea	50%	25%
Thailand	72%	36%
Switzerland	61%	31%
Indonesia	64%	32%
Malaysia	47%	24%
Cambodia	97%	49%

GETTY IMAGES

Donald Trump has upended global trade with his tariffs announcement

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UK

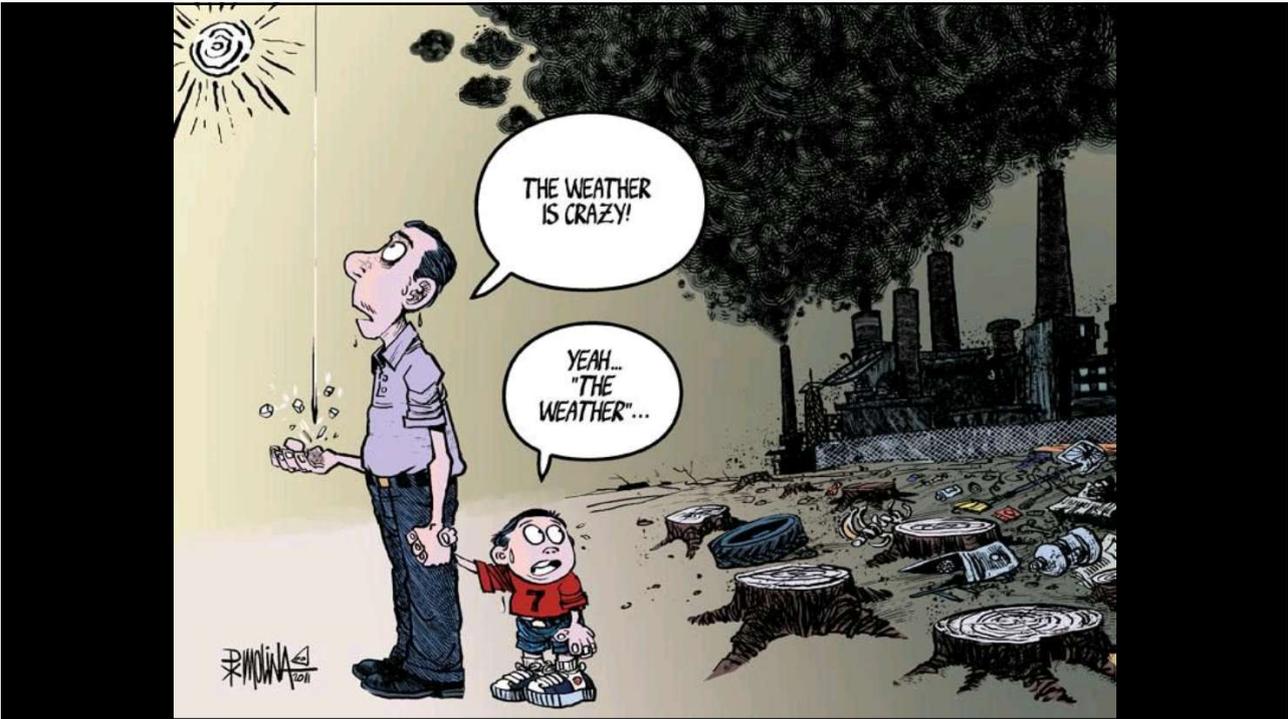
News Opinion Sport Culture Lifestyle

Business Economics Banking Money Markets Project Syndicate B2B Retail

Business live
Business

BP boss says oil company went 'too far, too fast' in green energy transition - as it happened

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'Fossil fuel giants finally in the crosshairs': Cop30 avoids total failure with last-ditch deal

It took some oblique wording, but Saudi Arabia made a last-minute decision to sign deal that marks departure for Cop



📷 Cop30 president Andre Correa do Lago (C) as negotiations continue. Photograph: Pablo Porciúncula/AFP/Getty Images

The COP30 deal does not explicitly mention a fossil fuel phase-out but obliquely references it by calling for countries to consider the "UAE consensus", the term for the 2023 agreement to "transition away from fossil fuels"

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Comparing the markets....

Automotive Industry

Global market size: \$2.2–\$2.9 trillion in 2024–2025

Construction Industry

Global market size: \$14.7–\$16.1 trillion in 2024–2025

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The world consumes 45-60 billion tonnes of raw materials every year.
(2010 data published 2012)

The world now consumes 100 billion tonnes of raw materials every year.
(2018 data published 2020)
https://www.circulargap.world/

Source information
Circular Gap Report 2024 by
Circle Economy Foundation,

130-140 billion tonnes in 2024

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The construction sector consumes around 50% of all the world's mined and harvested raw materials annually.....

and it's the environmental destruction associated with this process that is one of the main factors in generating the current Mass Extinction of Species

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UK consumes 600 million tonnes of products a year

UK generates about 200 million tonnes of waste a year, with the construction industry contributing about 63% - that's 120million tonnes of material!

By comparison, the construction industry in EU Countries represents between 35-45% of total waste flows

DEFRA UK 'Statistics on Waste' Feb '22

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**RESOURCE SECURITY
IS A THING OF THE PAST**

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Hold on to what you
already have &
RE-USE it

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**AVOID THE
TARIFFS**

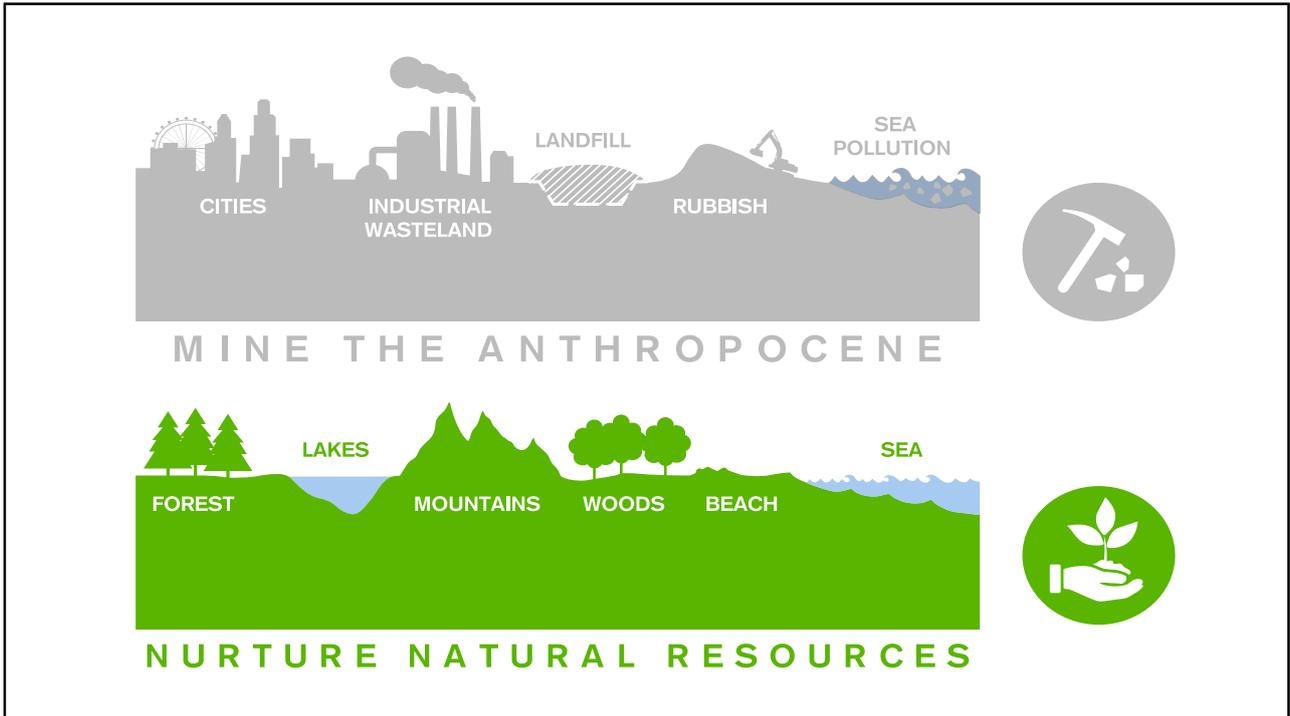
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**It's all about managing your
existing resources &
dramatically reducing the
need to consume new raw
materials**

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**RE-USE THE
PREVIOUSLY
MANUFACTURED**

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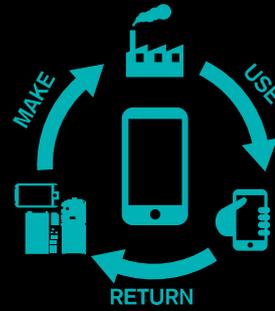


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EVERYBODY IS ASKING



BIO-SPHERE



TECH-SPHERE

WHAT IS A CIRCULAR ECONOMY?

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WE KNOW WHAT TO DO

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RIBA > Knowledge and resources > Knowledge > Get ready for the RIBA's climate literacy tests

Get ready for the RIBA's climate literacy tests

What will the RIBA's climate literacy competency tests cover? Mina Hasman, the author of forthcoming guidance, explains some of the topics and level of expertise.

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UK Net Zero Carbon Buildings Standard

Pilot Version rev1
September 2024

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 RIBA  Architecture.com
  RICS

The Institution of **StructuraEngineers**
  UK GBC

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Circular Economy Taskforce

Role of the taskforce

The Circular Economy Taskforce's expertise will enable co-design of the first strategy to begin the transition to a circular economy in England. The strategy will:

- support economic growth
- create green jobs
- promote efficient and productive use of resources
- accelerate the transition to net zero emissions

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MPs foresee £25bn circular economy opportunity for Britain, provide six-point action plan

A cross-party group of MPs has set out a six-point plan to accelerate the UK's transition to a circular economy, urging ministers to go further and faster as they prepare to publish England's first Circular Economy Strategy later this year.



Pictured: The use of a reverse vending machine for bottle collection under a Deposit Return Scheme

The All-Party Parliamentary Group (APPG) on the Environment has heard evidence that reducing waste, scaling reuse and enhancing recycling systems could deliver a £25bn boost to Britain's economy by 2035. It wants Ministers to seize these opportunities now by setting out enabling policies.

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URBAN MINING

Searching for new material sources to reduce the need for natural raw materials

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The Brighton Waste House



Europe's first permanent building made of 90% material discarded by others

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Over 360 students, apprentices and volunteers help construct The Waste House who worked over the Summer holidays to construct the roof

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Over 750 school children visited the live construction site

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600 SHEETS OF DISCARDED OR DAMAGED OSB, PLYWOOD & MDF

1.8 TONNES OF **DENIM OFFCUTS**

200 ROLLS OF BRAND NEW DISCARDED WALLPAPER

10,800 **TOOTHBRUSHES**

7.2 m² OF POLYSTYRENE AND OLD PACKAGING

200m² OF 100mm THICK WASTE INSULATION

210m² 150mm WASTE INSULATION

4000 VHS CASSETTES

2000 SECONDHAND NUTS AND BOLTS

0.9m³ OF CONCRETE BLOCKS

600 LAMPOST VINYL BANNERS

2000 FLOPPY DISCS

500 MUSIC CASSETTES

10 TONNES OF CHALK

4000 PLASTIC DVD CASES

2000 **CARPET TILES**

0.5m³ ON SITE TIMBER OFF CUTS

12m³ MIXED RECLAIMED TIMBER

1200m OF RECLAIMED ROOFING BATTENS

65m² **RECYCLED RUBBER** MEMBRANE

40m² OF RECLAIMED RAISED FLOOR TILES

1.44m³ **COFFEE GRINDS** & COFFEE CUP WORKTOP

70m² PLYWOOD RECLAIMED FROM BBM'S OWN WASTE TOTEM

400m² TYVEK VAPOUR CONTROL SHEETING

2 **RECLAIMED** OUPBOARD DOORS

30m² POROTHERM **CLAY BLOCKS**

12m OF DOWNPIPES

3 VELUX ROOFLIGHTS

RATIONAL WINDOWS & FRONT DOOR

1 RECLAIMED KITCHEN

14m OF GUTTERING

18 LITRES OF NEW LIFE PAINT

20 LITRES OTHER VARIETIES OF PAINT

65m³ **MDF OFFCUTS**

0.23m³ FOAM-GLASS INSULATION

2507 PERSON-DAYS TO BUILD

253 STUDENTS INDUCTED & WORKING ON SITE

800 DISCARDED BICYCLE **INNER TUBES**

2000m OF SECOND HAND 2"x2" SOFTWOOD TIMBER

10m³ OF COMPRESSED **RECYCLED PAPER**

BBM SUSTAINABLE DESIGN LTD
 Designing for a sustainable future... www.bbm-architects.co.uk

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Interreg EUROPEAN UNION
France (Channel) England
Sustainable Bio&Waste Resources for Construction
European Regional Development Fund
SB&WRC
Sustainable Bio & Waste Resources for Construction

Low Carbon Technologies

Project Description
The Sustainable Bio&Waste Resources for Construction (SB&WRC) project aims to develop 3 prototypes of construction materials made from agricultural co-products and recycled waste.

Budget received from the France (Channel) England Programme:
€ 1.26 million ERDF

Project Duration: **27 months**
Total Project Budget: **€1.8 million**

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SB&WRC: English's Restaurant in Brighton Throws away 50,000 Oyster shells a year!

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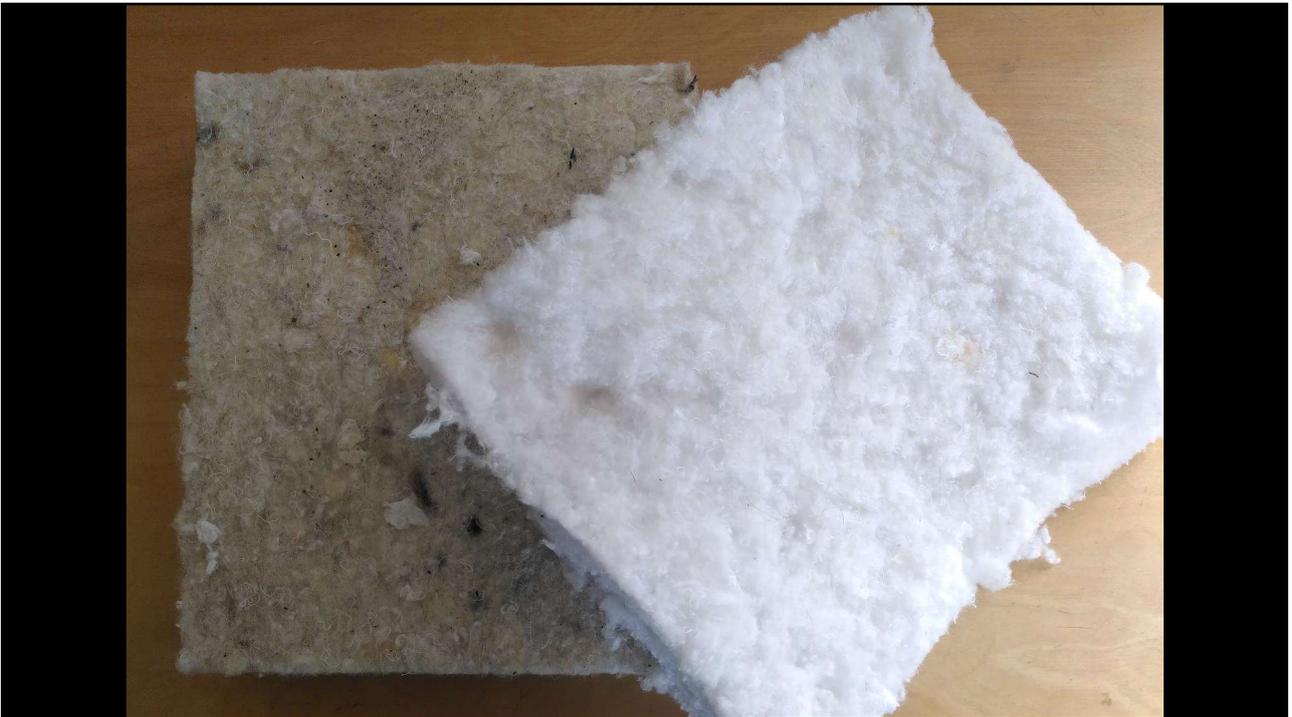
SB&WRC: Collecting waste duvets
Waste with Veolia

Installing duvets in the
House

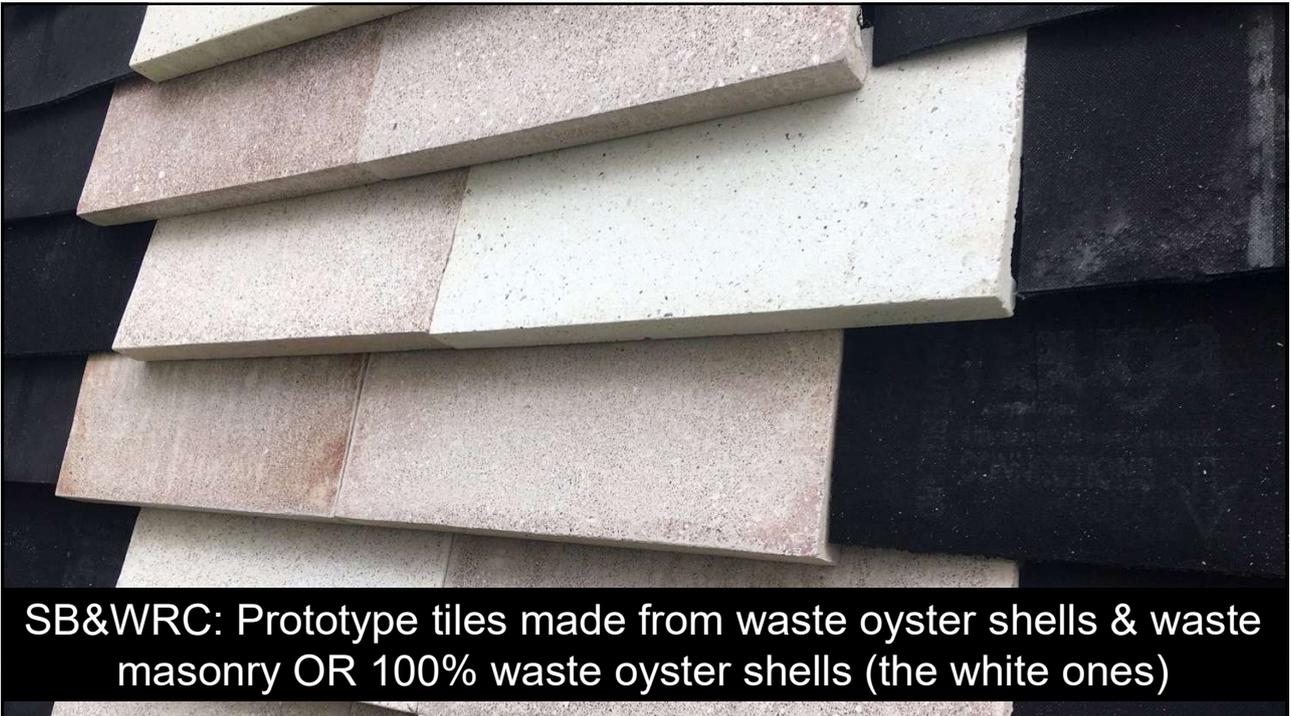
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SB&WRC: Prototype tiles made from waste oyster shells & waste masonry OR 100% waste oyster shells (the white ones)

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Extension to Design
Museum Gent Carmody
Groarke

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Local Works Studio with Carmody Groarke



•Traditional fired red brick =
5.65E+2 kgCO₂eq/m³

•Hydraulic pressed brick =
1.91E+2 kgCO₂eq/m³

Excavation waste materials are graded, mixed and hydraulically pressed into moulds to create a strong, dense material.

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Interreg
North-West Europe
FCRBE
European Regional Development Fund

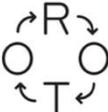
The FCRBE project is a partnership between Bellastock, the Belgian Building Research Institute, Brussels Environment, Centre Scientifique et Technique du Bâtiment, the Construction Confederation, Rotor, Salvo and the University of Brighton.



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BELLASTOCK
ARCHITECTURE EXPERIMENTALE



Construction Confederation
Construction, Energy & Environment



CSTB
le futur en construction



SALVO
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University of Brighton

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School of Re-construction

02-13 AUGUST 2021

School of Re-construction

RE-THINK RE-USE

School of Re-construction

blogs.brighton.ac.uk/schoolofreconstruction

Interreg
North-West Europe
FCRBE

CEC **Construction Construction**
European Union

CSTB
Centre Scientifique et Technique
de la Construction

UNIVERSITY OF BRIGHTON



24 academics & practitioners plus 80 students
from 35 academic institutions from countries as
far apart as Colombia to China, via Ireland,
France, Spain, Germany and Greece

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Interreg
North-West Europe
FCRBE

The Pedagogies of Re-Use

The International School
of Re-Construction

Edited by Duncan Baker-Brown
and Graeme Brooker



Out Now!

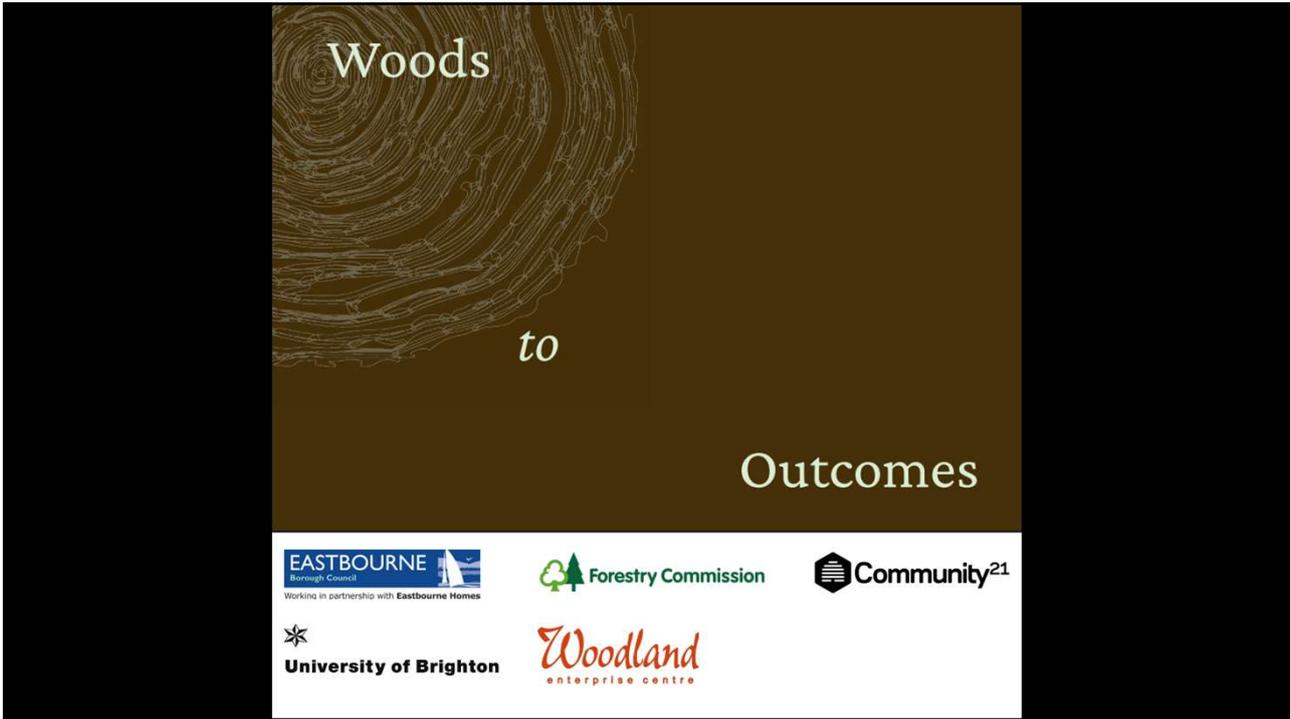
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"PHENOMENAL USAGE STATS!"

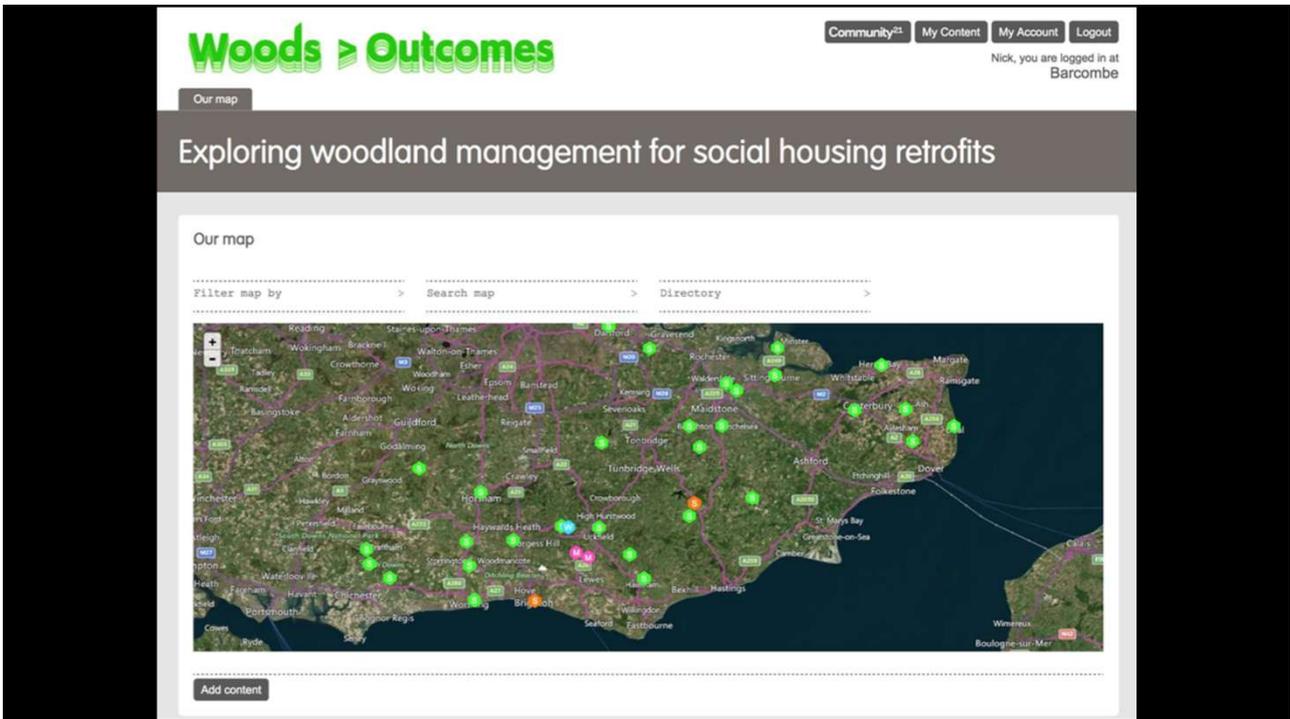
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We have just achieved
57,000 downloads across 167
institutions in 40 countries

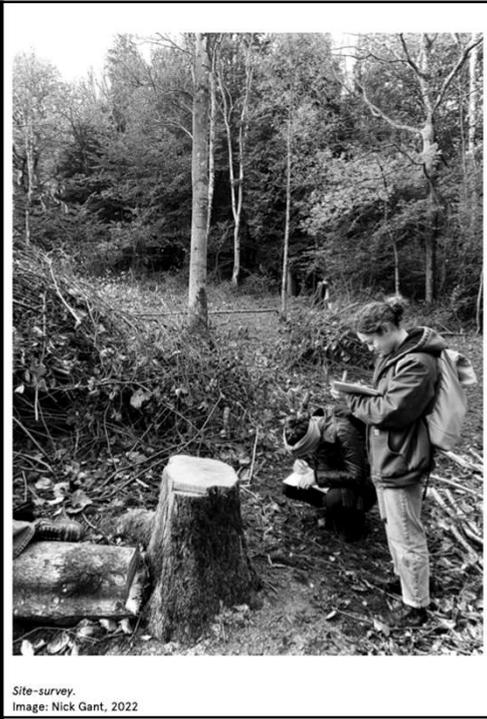
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Site-survey.
Image: Nick Gant, 2022

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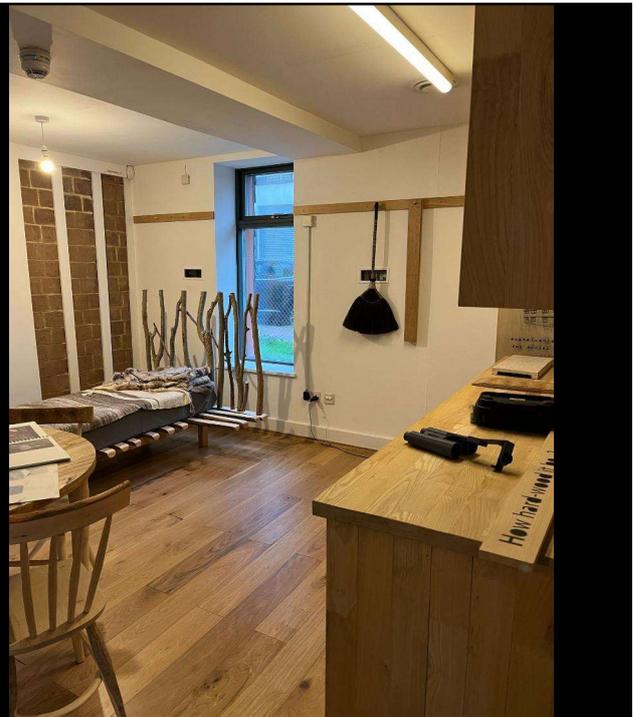
Sussex S.E.E. Choir
fabrication workshop.
Image: Nick Gant, 2023

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The Prototype Design Approach – 87

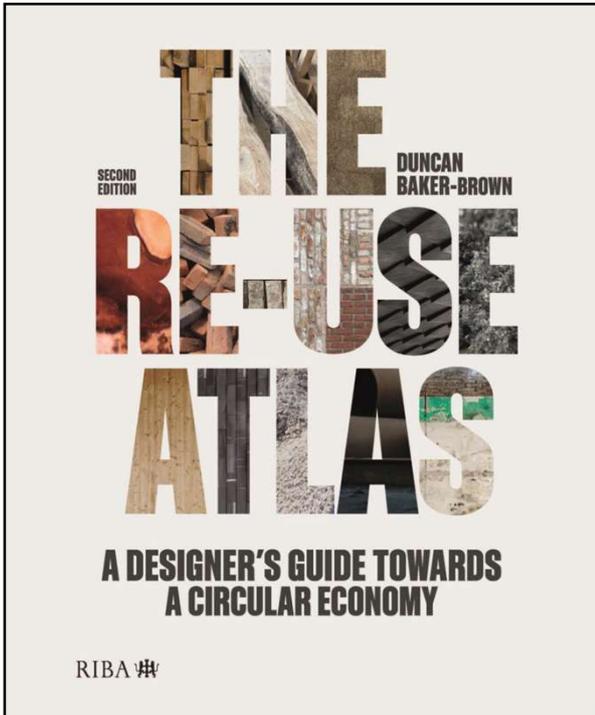
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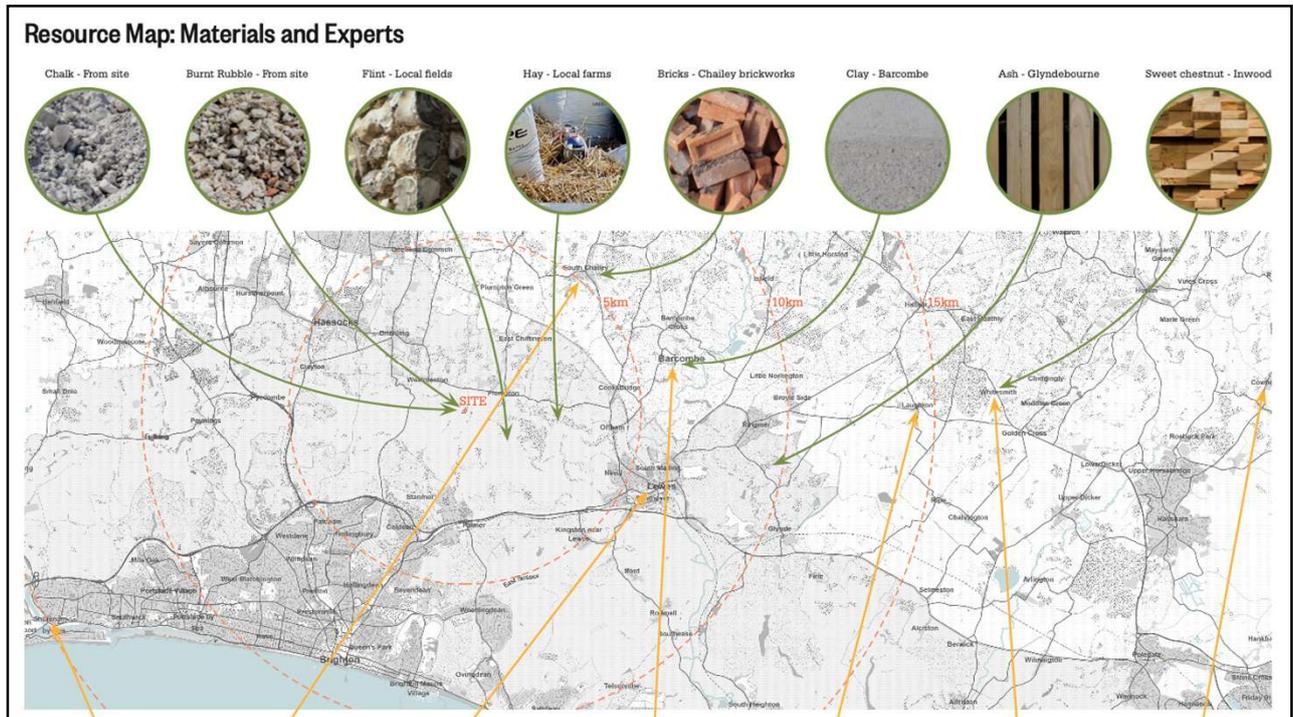
Acoustic monitoring
pilot installation.
Image: Nick Gant, 2023



Also Out
Now!

STEP 1. RE-CYCLE

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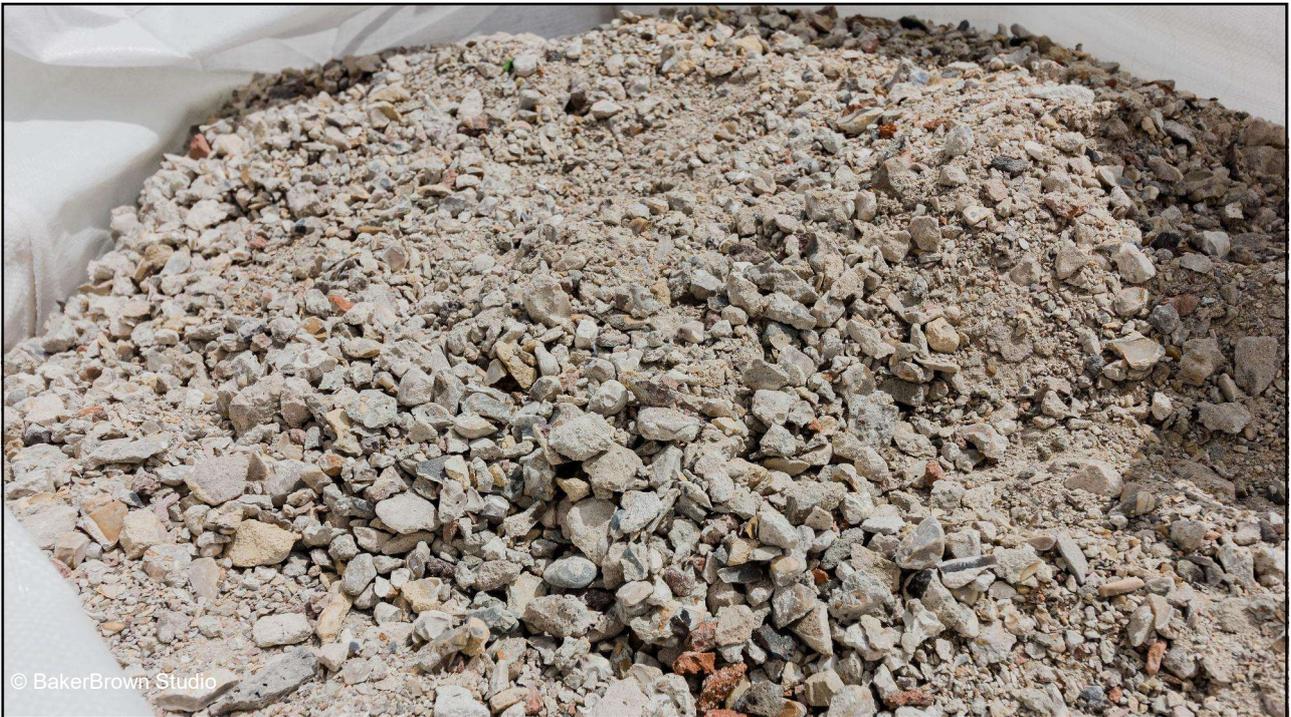


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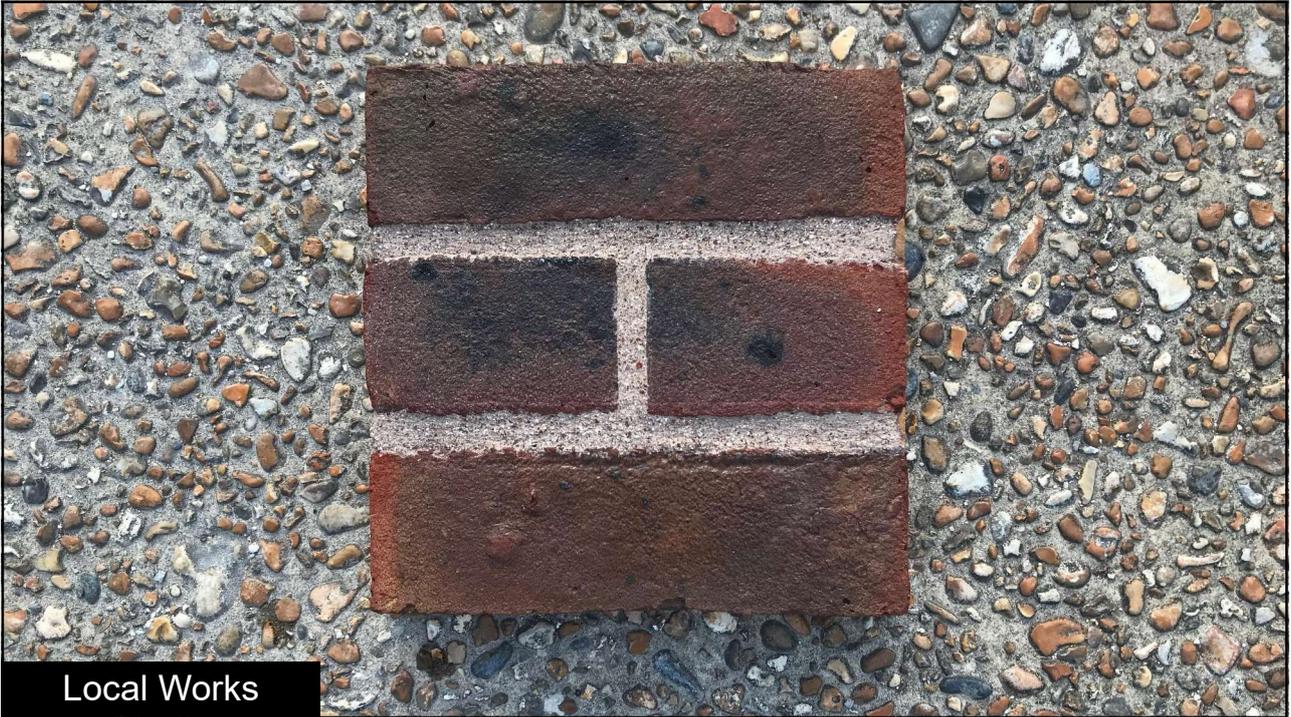
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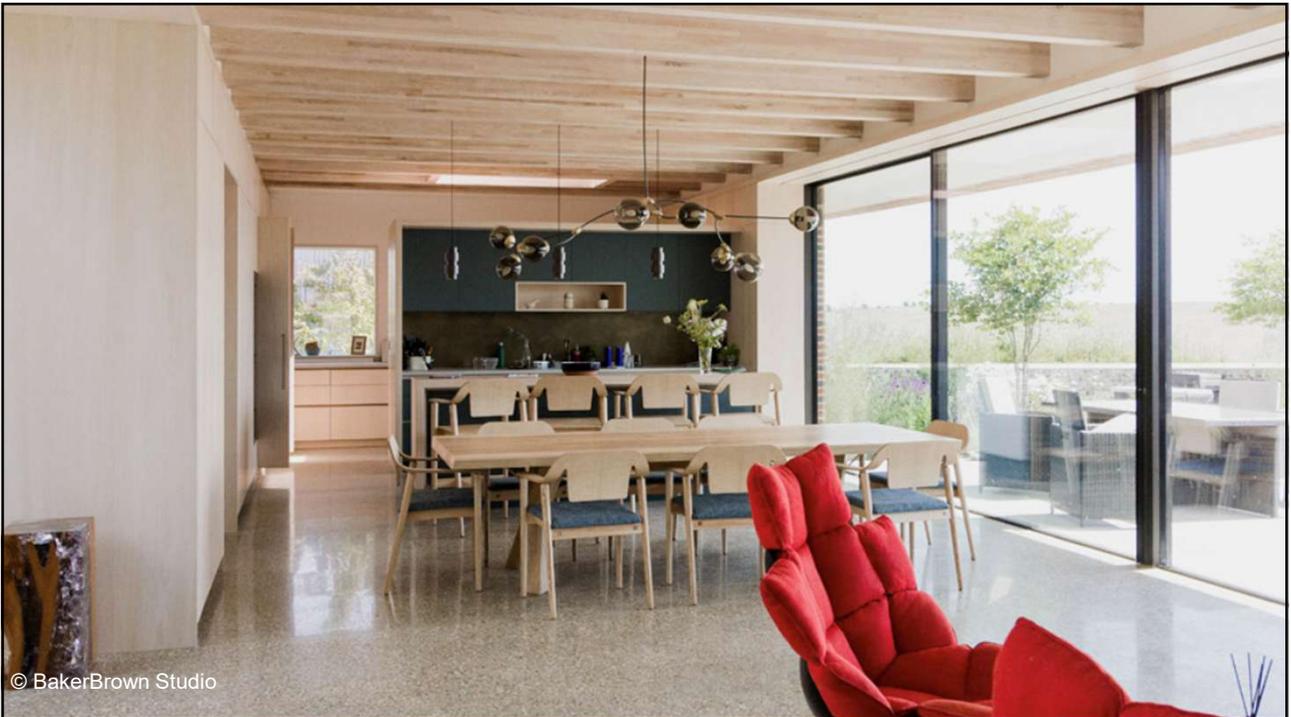
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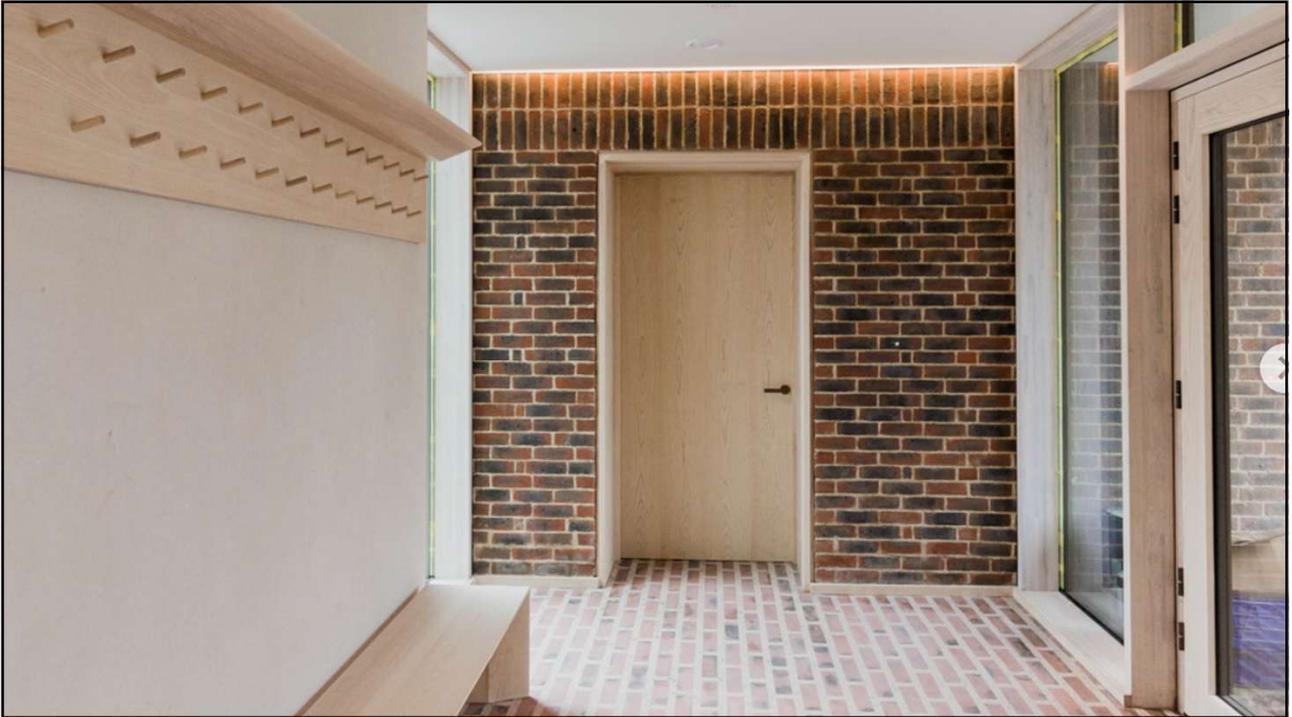
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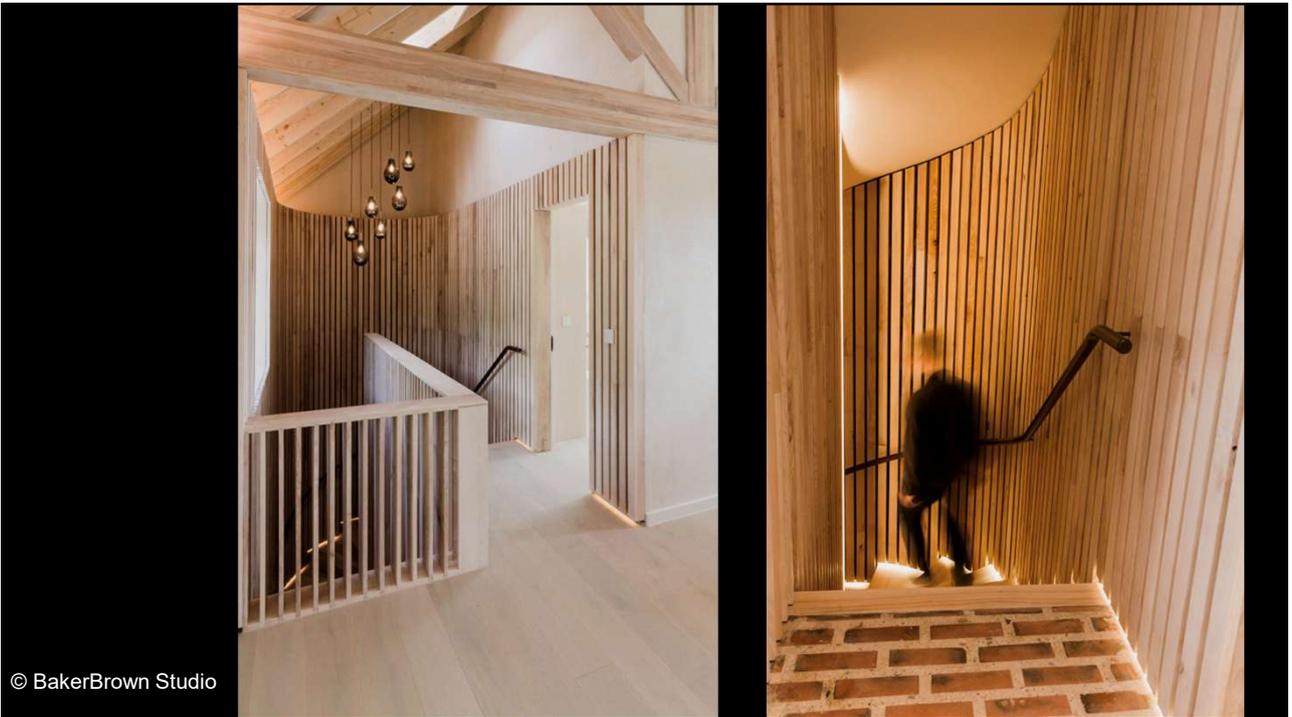
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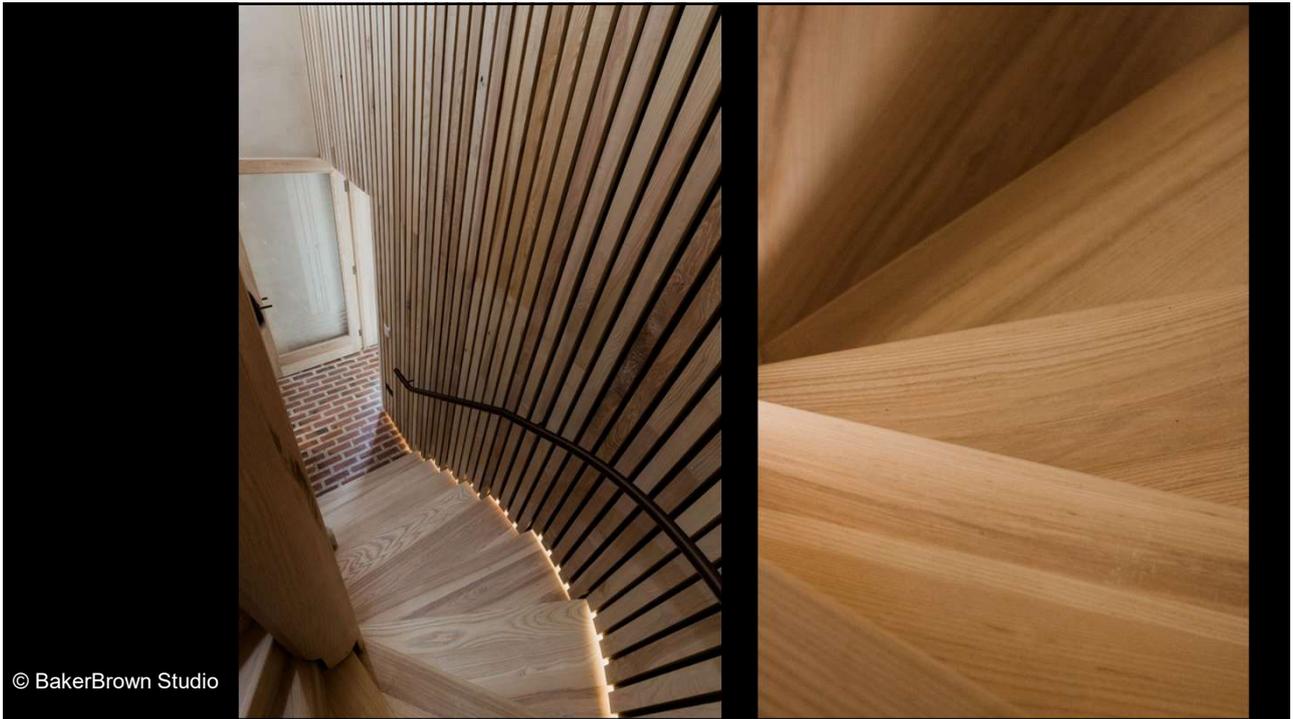


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STEP 2. RE-USE

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RotorDC
Deconstruction / Consulting

We dismantle, process and trade salvaged building materials

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Sell your materials through RotorDC

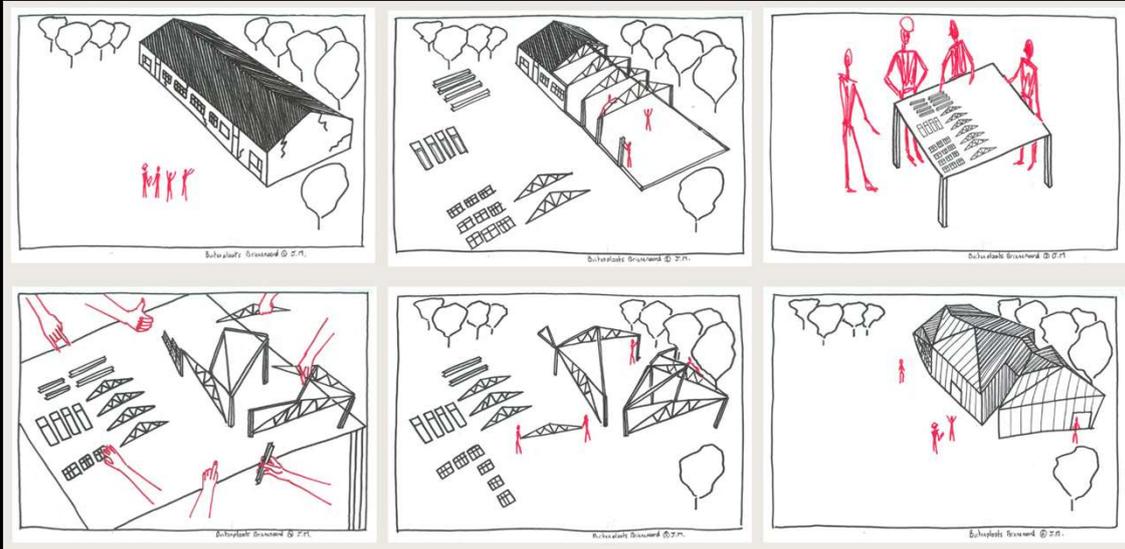
[FIND OUT HOW!](#)

< >

The image is a screenshot of a website for RotorDC. At the top, the company logo and name are displayed. Below the logo is a navigation menu with links for Home, Store, News, About, and Brut. The main content area features a large photograph of a person using a yellow RotorDC tool to remove a circular mirror from a wall. The mirror is held in a yellow frame, and the tool is used to pry it away from the wall. The text "Sell your materials through RotorDC" is overlaid on the image, along with a "FIND OUT HOW!" button and navigation arrows.

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Superuse Studio



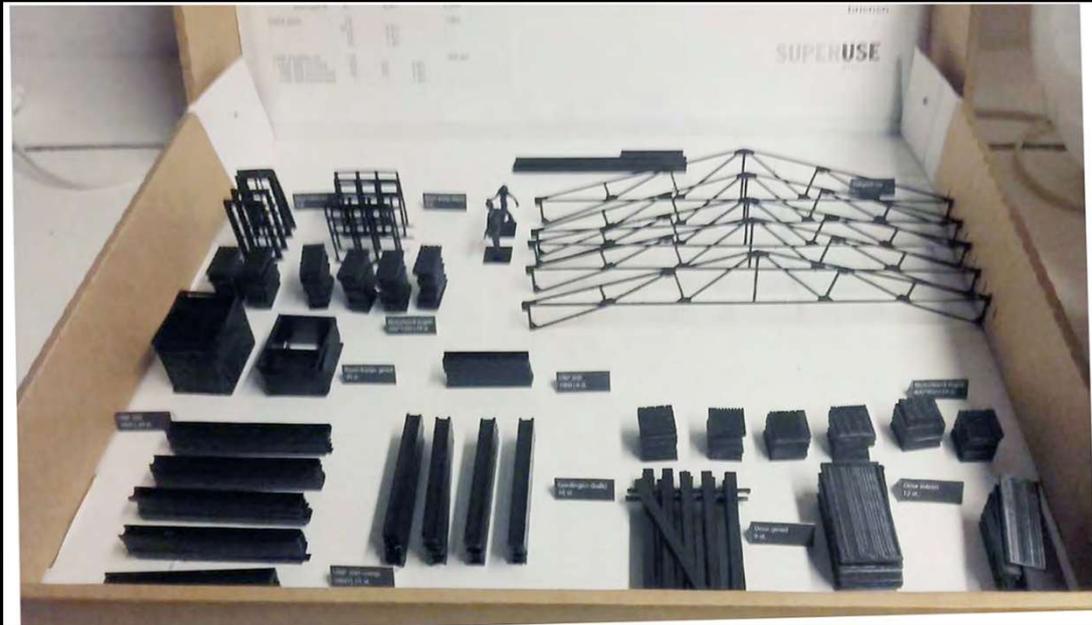
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