Urban Mining

Future Cities: Rethinking tomorrow’s cities today

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Presented by
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We live in ‘interesting’ times
How will we occupy our cities post-pandemic?

Coronavirus turns the City into a ghost town | Free to read

The success of homeworking is threatening to transform London’s financial district

Ghost town: the City of London last week © Jason Alden/Bloomberg

High end stores in Manhattan board up their windows and entrances to prevent looting amid coronavirus (Covid-19) outbreak in New York, United States on March 29, 2020.
2019 was the year that 90% of UK local authority regions committed to being Net-Zero Carbon by 2030! That’s 60,000,000 citizens.

Currently 814,000,000 people around the world live in states that have declared a Climate & Ecological Emergency
And some people already have an Action Plan!
SO WHAT DO WE DO NEXT?
Approximately 66 million years ago...

Well that looks like it will cost a fortune...
SO WHY SHOULD WE CARE?
There is no vaccine for the Climate & Ecological Emergency.
SO WHY US?
Globally, the built environment consumes 50% of all raw natural materials harvested and mined annually and accounts for 45% of CO$_2$e emissions.

UK generates about 200 million tonnes of waste a year, with the construction industry contributing about 60% - that’s a massive 120 million tonnes.

DEFRA UK ‘Statistics on Waste’ Feb ‘18
So it’s all about managing resources
..... and it’s often designers & constructors who do this
THE CHALLENGES
WE CURRENTLY EXIST AS A LINEAR ECONOMY

WE TAKE, MAKE, & THROW AWAY

NO OTHER NATURAL SYSTEM WORKS LIKE THIS!

LINEAR ECONOMY

NATURAL RESOURCES → TAKE → MAKE → DISPOSE → WASTE

TECHNICAL & BIOLOGICAL MATERIALS MIXED UP

ENERGY FROM FINITE SOURCES
THE OPPORTUNITIES
A Circular Economy

BIO-SPHERE

ENRICH

MAKE USE

TECH-SPHERE

MAKE USE

RETURN
SOME GOOD NEWS
At one point today 69% of electricity in the UK nation grid was generated by WIND & SOLAR POWER... That's the highest percentage EVER #RenewableEnergy #ClimateActionNow
LONDON'S CIRCULAR ECONOMY ROUTE MAP

Brighton & Hove Circular Economy Routemap
A sustainable green growth strategy for the city
2020-2035
RIBA 2030 CLIMATE CHALLENGE

Sign up to take the RIBA 2030 Climate Challenge at www.architecture.com/2030challenge

LETI Climate Emergency Design Guide
How new buildings can meet UK climate change targets
Climate Framework

A cross-industry action group initiative

Climate Curriculum Structure

In an era of rapid changes where climate change dominates the agenda as the “greatest threat to humanity”, we rely on catalysing collective action to minimise adverse and permanent impacts of climate change onto our Planet. To achieve this, climate scientists urge global warming to remain below 1.5°C by the end of this century.

Limiting global warming to 1.5°C will be challenging – it will require rapid and far-reaching transitions at an unprecedented rate – and it will rely on the global economy reaching net zero carbon by 2050, with the built environment sector needing to transition to net zero carbon by 2030.

Collectively developed by leading cross-industry professionals, the Climate Curriculum aims to create a holistic yet focused knowledge base – weaving the golden thread through universities and industry – in order to equip the current and future generations of built environment professionals with the competence and confidence to deliver on the “1.5°C ambition”.

Cross-Industry Action Group: Education
Climate Curriculum Structure
1 of 3
The greenest building is the one that already exists.

#RetroFirst

Campaign for 0% VAT on Net-Zero Carbon Retrofit
The case for ... never demolishing another building
RE-USE IS THE BIG DEAL
80% of today’s built environment will be with us in 2050
We actually know what to do
THE RE-USE ATLAS
A DESIGNER’S GUIDE TOWARDS A CIRCULAR ECONOMY
DUNCAN BAKER-BROWN
RIBA Publishing
Step 1: Recycling
Step 2: Reuse
Step 3: Reduce
Step 4: Closed loop
RECYCLING
Net-Works™

Net-Works is the first step in creating a truly restorative loop in carpet tile production, cleaning up oceans and beaches while also creating financial opportunities for some of the poorest people in the world. Over 660 million people on the planet depend upon the oceans to support their livelihood. But year after year, pollution in our waters and beaches gets worse.

The Net-Works program is not just about beach cleanup, though that is a vital piece. Net-Works is also helping the villagers establish new financial opportunities by providing an additional income stream as well as supporting the creation of community banking.

ENLARGE
SB&WRC: English’s Restaurant in Brighton Throws away 50,000 Oyster shells a year!
SB&WRC: Prototype tiles made from waste oyster shells & waste masonry OR 100% waste oyster shells (the white ones)
REUSING MATERIALS
URBAN MINING
Searching for new material sources to reduce the need for natural raw materials
CITIES ARE MATERIAL STORES FOR THE FUTURE
The Brighton Waste House

Europe’s first permanent building made of 90% material discarded by others
25,000 tooth brushes collected from Gatwick Airport in only 4 days!

More low grade insulation
FIRE TESTING CARPET TILES

TOM QUADY OF BRIGHTON & HOVE CC BUILDING CONTROL WATCHES ON & APPROVES!
800 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 WIRE CASSETTES

2000 SECONDHAND NUTS AND BOLTS

6.0m³ OF CONCRETE BLOCKS

800 LAMPOST VINYL BANNERS

2000 PLOPPY DISCS

500 MUSIC CASSETTES

10 TONNES OF CHALK

4000 PLASTIC DVD CASES

2000 CARPET TILES

0.5m³ ON SITE TIMBER OFFCUTS

70m³ MIXED RECLAIMED TIMBER

1000m³ OF RECLAIMED ROOFING BATTENS

65m³ RECYCLED RUBBER MEMBRANE

1.44m² OF RECLAIMED RAISED FLOOR TILES

140m² OF RECLAIMED SIDEWALK AND PAVING

70m³ PLYWOOD RECLAIMED FROM BBM’S OWN WASTE TOTEM

400m² TYPICAL VAPOUR CONTROL SHEETING

2 RECLAIMED CUPBOARD DOORS

50m³ POROTHERM CLAY BLOCKS

12m³ OF DOWNPIPES

3 VELUX ROOFLIGHTS

RETIKEL WINDOWS & FRONT DOOR

1 RECLAIMED KITCHEN

14m³ OF GUTTERING

18 LITRES OF NEW LIFE PAINT

20 LITRES OTHER VARIETIES OF PAINT

65m³ MDF OFFCUTS

0.25m³ ROAM-GLASS INSULATION

2507 PERSON-DAYS TO BUILD

250 STUDENTS INDUCED & WORKING ON SITE

500 DISCARDED BICYCLE INNER TUBES

2000m² OF SECOND HAND 2” X 2” SOFTWOOD TIMBER

10m³ OF COMPRESSED RECYCLED PAPER

BBM SUSTAINABLE DESIGN LTD

Designing for a sustainable future... www.bbm-architects.co.uk
WP 5.2 Sourcing & testing raw materials manufacturing ‘mini-prototypes’ for Prototype 2.
Landeger Group RESOURCE ROWS

© Landeger
The Boudewijn Building, built for the Vlaamse Gemeenschap and opened in 1990, is currently scheduled for total demolition. In the coming weeks we will remove large quantities of reusable materials such as glass partition walls and doors, decorative lighting and furnishings, as well as technical installations. Materials will be added to our website in the order that they are processed in our warehouse.

Available materials from Boudewijn Building:
Recent Arrivals

- **Hanging light in dark grey glass**
  - € 139,00

- **Small porcelain sink ‘Fidelio’ by Keramag**
  - € 69,00

- **Bathroom sink by Villeroy & Boch**
  - € 99,00
REDUCE
Working with Existing Places
Lacaton & Vassal - Paris 17, Tour Bois le Petre - Druot

Before

After
Working with Existing Places
Lacaton & Vassal - Paris 17, Tour Bois le Petre - Druot

APPARTEMENT T2 EXISTANT

APPARTEMENT T2 + EXTENSION (JARDIN D'HIVER 15 m² + BALCON 7,5 m²)
And don’t forget the Solidarity Fridge
RE-USE IS THE BIG DEAL
SO - CLOSE ALL CONVENTIONAL MINES
MINE THE ANTHROPOCENE

FOREST  MOUNTAINS  WOODS  BEACH  SEA

NURTURE NATURAL RESOURCES
SMART CITIES/BIG DATA
Quantifying your resource potential
Digital Tools and Databases are emerging
Contour platen metaal

11-06-2013
Amount: 5000 (kilo)

Contour plates consist of a steel plate with figures cut out by a plasma cutter. Each contour plate
The MOES restaurant is a sequence of spaces with atmospheres: a gradient of sound, light and movement which flows from the busy street to the quiet garden. Shown here is the harvest map of the project, which reveals all the sources of the used materials.
A brief word about Dr. Elma Durmisevic of 4D Architects
The case for a resource exchange mechanism

White Paper No. 3 | 2019
THE CIRCULAR ECONOMY EVER
BIO-SPHERE

MAKE

USE

ENRICH

TECH-SPHERE

MAKE

USE

RETURN
Peter Zumthor’s Swiss Sound Box
Material Passports will plug into BIM Models.
New Circular Procurement

Philips’ Lease Lux at Schiphol Airport
Designing for disassembly with technical 'nutrients'
Designing for disassembly with technical ‘nutrient’
We actually know what to do. So what is stopping you?
“So stop treating Sustainability as a Micky Mouse issue”

Bernard Aritua
Senior Infrastructure & Logistics Specialist World Bank

EMBEDDING SUSTAINABILITY AND THE CIRCULAR ECONOMY IN MAJOR PROJECTS - THE OPPORTUNITY AND THE CHALLENGE

Highlights from the Major Projects Association Annual Conference held on 16th–17th September 2019

Sustainability is now a core issue for the major projects community. The sector must respond to pressure from governments, clients, investors, insurers and the public for projects to make a greater contribution to the triple bottom line.

‘Time, cost and quality is old school. People, planet and profit is the new way forward.’
Isabelle Linden, Managing Consultant, Sustainability and Circular Economy Expert, PA Consulting

The UN’s 17 Sustainable Development Goals (SDGs) provide project leaders with a shorthand for understanding the breadth of these economic, social and environmental challenges. When the SDGs are translated into specific objectives, such as the UK’s commitment to reduce net carbon emissions to zero by 2050, the demand for radical, generational change becomes very clear.

This all creates a significant opportunity for major projects. The community needs to be bold in its ambitions, embrace technology and innovation, and develop collaborative relationships across the project life cycle. If it is successful it can do good, grow in profitability, build public support and attract the next generation into the industry.

This year’s annual conference explored how engineers, contractors and the wider project community can move towards a new era of sustainability. (Bernard Aritua, Senior Infrastructure and Logistics Specialist, World Bank)
OUR BIGGEST CHALLENGE

NOT CHANGING TODAY
THANK YOU
KEEP SAFE
&
KEEP WELL