

FIS

FINISHES & INTERIORS SECTOR

The importance of collaboration to deliver a sustainable fit-out

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Introduction

Flavie Lowres, FIS Sustainability Lead

How clients can raise the bar for sustainability requirements

Emily Samoluk, Sustainability Manager, British Land

How can collaboration and early engagement can help drive better sustainable outcomes

Head of Sustainability, Troldekt

What needs to change in terms of our approach to responsible sourcing

Chris Webb, TP Bennett

The critical elements of sustainable fit-out

Peter Kelly, ISG



Flavie Lowres
Sustainability Champion, FIS

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11% of UK construction spend is on fit-out

Buildings may have 30 fit-outs during their lifecycle

FIS

Representing the
finishes & interior sector

Ongoing vetting of
contractors

Setting higher
standards

Driving quality
through a focus on

PRODUCT

PROCESS

PEOPLE

www.thefis.org

It's about you...
Finishes and Interiors Sector

- A very broad topic covering
 - Carbon emissions and net zero
 - Wastes
 - Resource efficiency
 - Circular economy
 - Biodiversity
 - Health and wellbeing
 - Social value
 - etc



Emily Samoluk
Sustainability Manager
British Land

How clients can raise the bar
for sustainability requirements

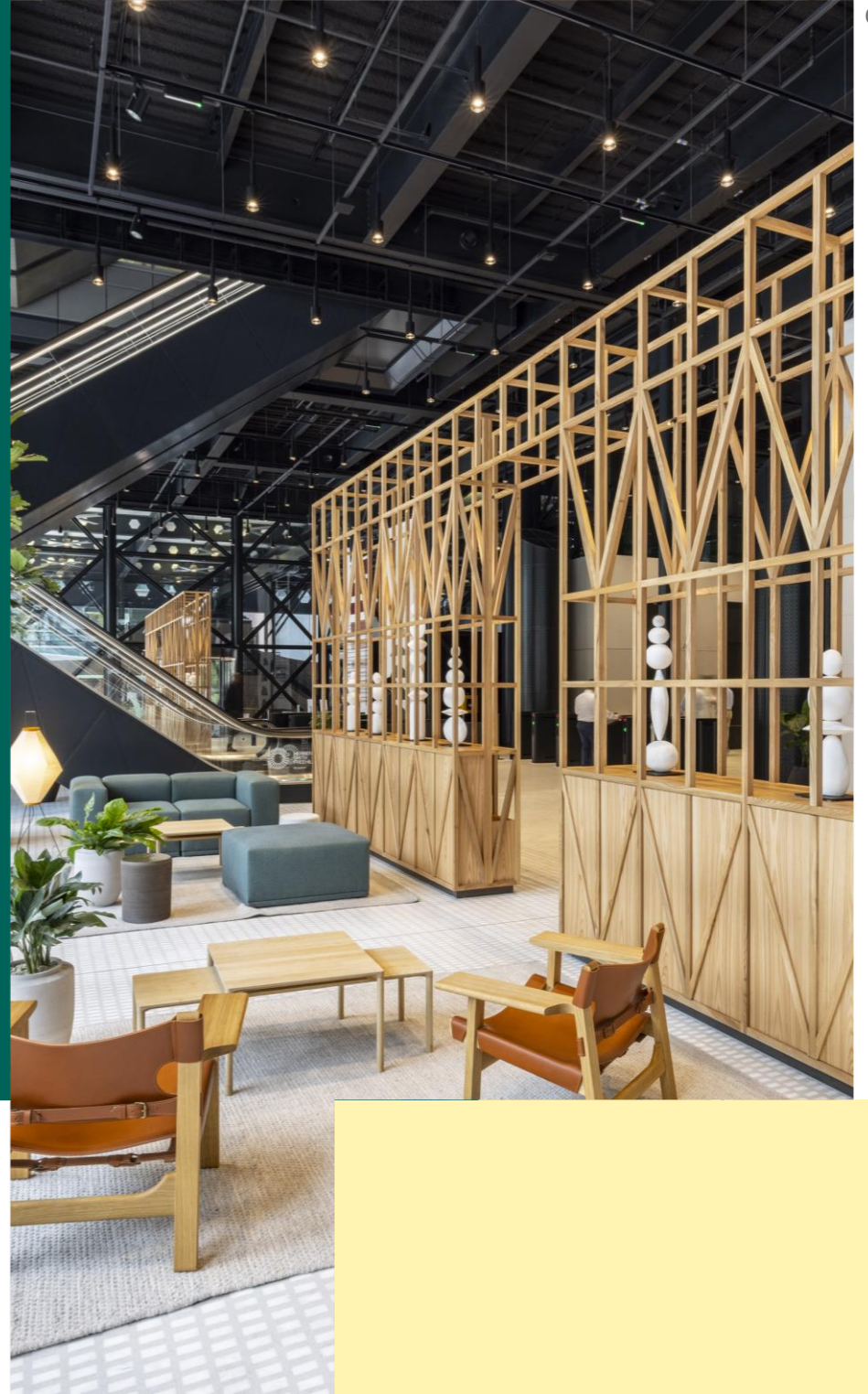
HOW CLIENTS CAN RAISE THE BAR FOR SUSTAINABILITY REQUIREMENTS

Emily Samoluk | Sustainability Manager

Emily.Samoluk@britishland.com



FIS CONFERENCE | 28 FEBRUARY 2024





CONTENTS

- 01. Our 2030 Sustainability Vision

- 02. Sustainability Brief for Developments

- 03. How we are reducing embodied carbon in projects

- 04. Circular economy

- 05. Collaboration stories

SUSTAINABILITY UNDERPINS ALL OUR ACTIVITY



GREENER SPACES

50% less embodied carbon at our developments

75% reduction in operational carbon intensity

100% of developments to be net zero



THRIVING PLACES

Committed to a £25m Social Impact Fund to 2030

Education / employment initiatives targeting 90,000 people by 2030

Affordable space, targeting £10m by 2030



RESPONSIBLE CHOICES

Target of at least 40% female representation on the Board and senior management

17.5% ethnic minority representation across the Company by 2025

Independent anti-modern slavery audits of critical suppliers

NET ZERO CARBON BY 2030

EMBODIED CARBON

50%

LESS

embodied carbon emissions at our developments, to below 500kg CO₂ e per m² by 2030

100% DEVELOPMENTS

delivered after April 2020 to be net zero embodied carbon



TRANSITION VEHICLE

financing retrofitting of standing portfolio from carbon pricing of £60 per tonne self-levied on our developments



OPERATIONAL CARBON

25%

IMPROVEMENT

in whole building energy efficiency of existing assets by 2030

75%

REDUCTION

in operational carbon intensity across our portfolio by 2030



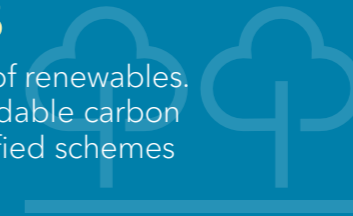
DEVELOPMENTS

- Circular economy
- Smart technologies
- Net biodiversity gain

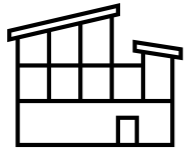
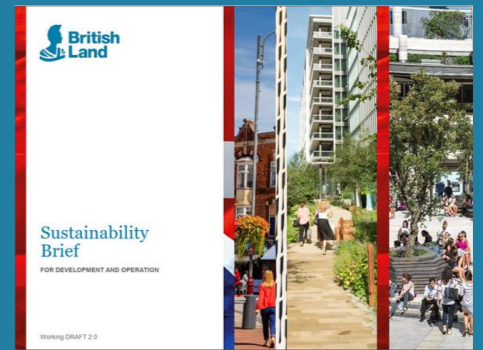


RENEWABLES AND OFFSETS

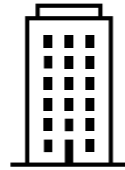
- Increase use of renewables.
- Offset unavoidable carbon through certified schemes



BRITISH LAND SUSTAINABILITY BRIEF FOR DEVELOPMENTS



Base build energy use intensity $55\text{kWh}_e/\text{m}^2/\text{YR}$ NLA



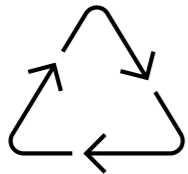
Upfront embodied carbon of $500\text{kgCO}_2\text{e}/\text{m}^2$ GIA



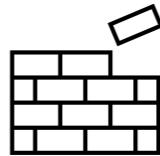
Deliver against the British Land Materials Schedule



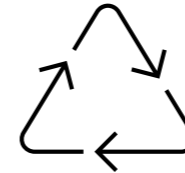
Climate resilience, nature-based solutions and biodiversity net gain



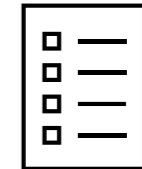
Design for disassembly, reuse and takeback schemes across 30% of materials and products



90% of unwanted resources are upcycled



50% proportion of reused materials or with recycled content



Materials passports strategy implemented on all projects

HOW WE ARE REDUCING EMBODIED CARBON IN DEVELOPMENTS

Material re-use

Glass

3,500m² windows recycled

(1 Triton Square)

Steel frame

Piloting steel re-use

(2 Finsbury Avenue)

Tiling

Stone cladding repurposed as flooring

(1 Broadgate, Exchange House)

Globechain partnership

c.340 tonnes donated to communities for re-use

Raised access floor

Retaining or specifying previously used RAF

(All developments)

Aluminium cladding

Exploring option onsite and offsite reuse

Innovative materials & processes

Low carbon concrete

95% GGBS and Earth Friendly Concrete

(1 Broadgate and Canada Water)

Low carbon steel

Electric arc furnace steel

(Various)

Demountable beams

Facilitating deconstruction

(2 Finsbury Avenue)

High recycled content

Façade

(Broadgate and Canada Water)

Materials passport

Facilitating deconstruction and designing for disassembly

(1 Broadgate, 2 Finsbury Avenue)

Materials mapping

Supply chain engagement and storage for materials

(Various)

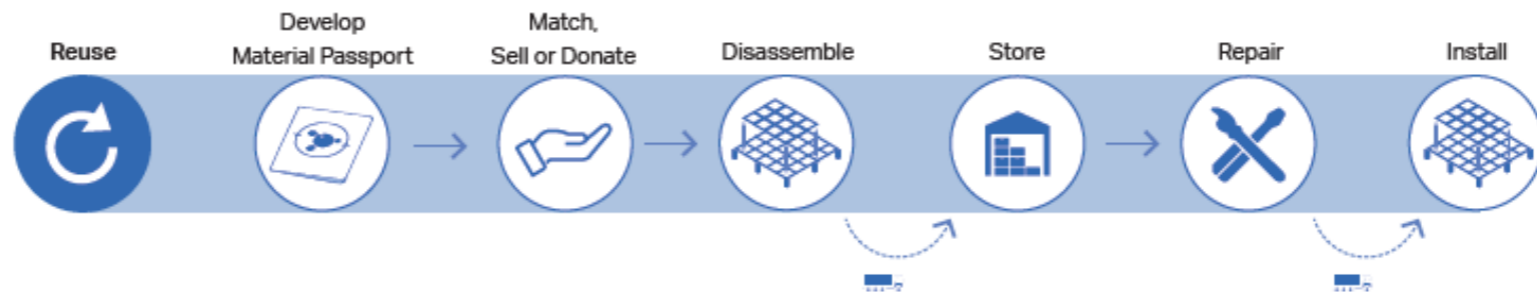
USING RECYCLED RAISED ACCESS FLOORS

Replacing raised access flooring tends to be the biggest source of carbon on Cat A fit outs

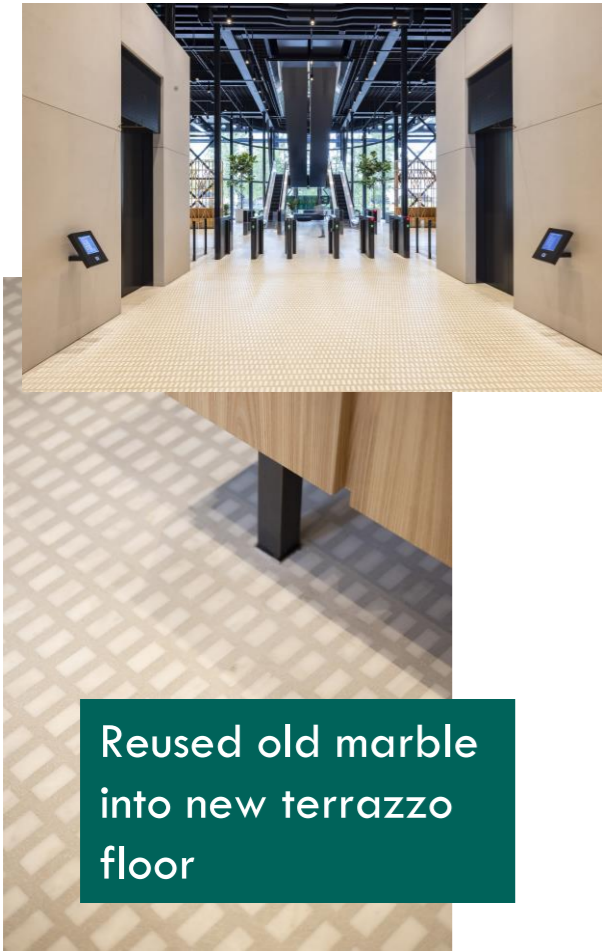
The norm is to buy new - even though existing flooring often has many more years of potential life

At Exchange House, we sourced quality used materials. These are rigorously tested and warranted by the supplier

6,000 sqm of reused tiles installed
saving 200 tonnes of carbon



COLLABORATION STORIES



Materials Passport		Aldgate Place		tp bennett Updated October 2023
General	Supplier	Apex, Robust UK		Office Basement Cycle Store - Fire rated, single leaf metal doorset w/ vision panel
	Contact Details	David Lycett, 01782 592900; sales@robust-uk.com		
Components	Manufacturer / Location	Robust UK Ltd / Stoke on Trent		
	Model / Product name	INNA-DOR 60, Single Door latched with Part M compliant vision panel, PPC		
	Product Code (if applicable)	INNA-DOR 60 S		
	Year of Installation	2024		
	End of Warranty	2029		
Embodied Carbon A1-A3	Components & weight (kg/m ²)	Unknown (no EPC)	Recycled Content	0%
		Steel - 80%	Coatings/Finishes	Polyester Powder Coated RAL7045 (30%)
Cleaning		Glass - 15%	Water Consumption (if applicable)	N/A
		Ancillaries inc. self adhesive door seal, glue, infills - 5%	Energy Consumption (if applicable)	N/A
Maintenance	Washed down with a non abrasive cleaning solution such as washing detergent diluted in hot water using spray cloth. PPC finish should be cleaned with a soft cloth and household furniture polish. Under no circumstances must industrial solvents be used.	Repair location (on site/locality/ factory)	Repair carried out by	Robust or its authorised subcontractor
	Alignment, hinges, closers, handles checked for wear/lubrication/operation	Frequency	Other maintenance	6 monthly intervals
Fixing Method (e.g. screw type, adhesive, mechanical fixing)	'Z' and astragal section to form a rebated meeting stile. Frame - Screw and tab construction with 4 no adjustable living feet per jamb. Frame is fixed with 3 no class 13 hinges with 2 no dog bolts	Deconstruction drawing/instructions	As per installation, in reverse	

5 years life span product materials passports

Emily Samoluk | Sustainability Manager

Emily.Samoluk@britishland.com





Tina Kristensen

Head of Sustainability, Troldekt

How can collaboration and early engagement can help drive better sustainable outcomes



The importance of collaboration to deliver a sustainable fit-out

Workspace Design Conference 2024

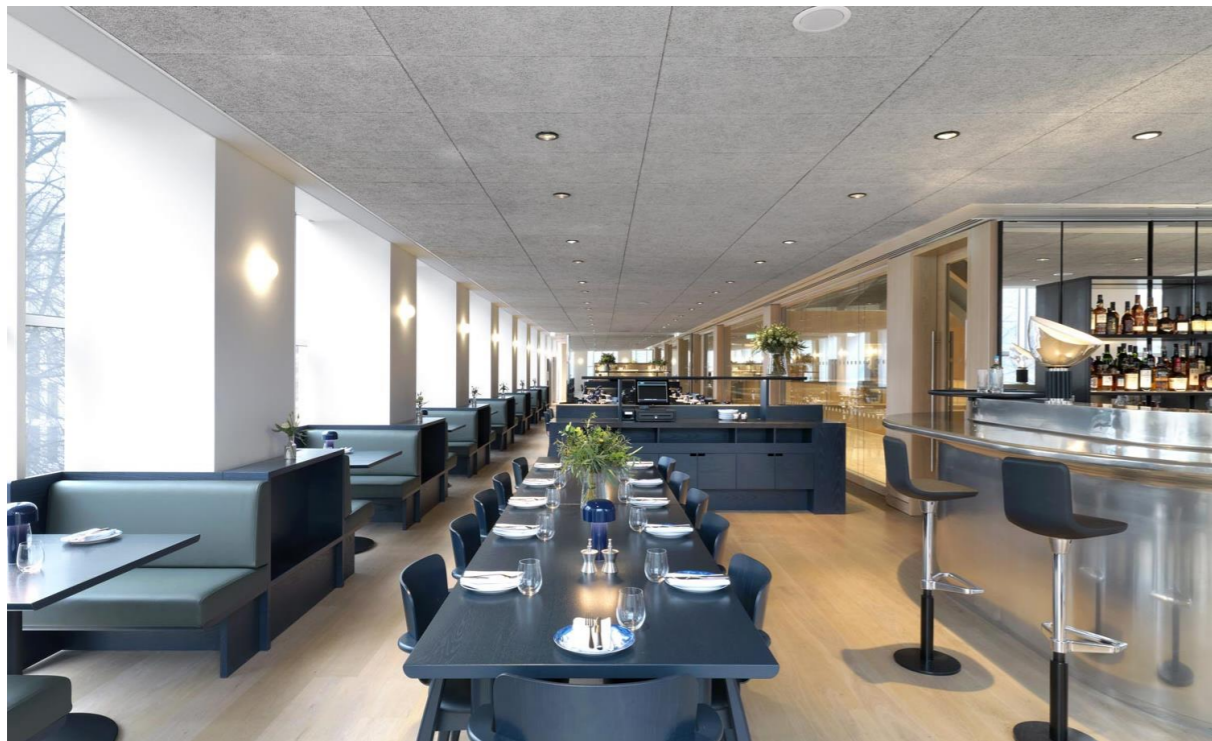
Tina Snedker Kristensen, Head of Sustainability & Communications, Troldekt A/S

Troldekt® acoustic panels



Das Zeichen für
verantwortungsvolle
Waldwirtschaft

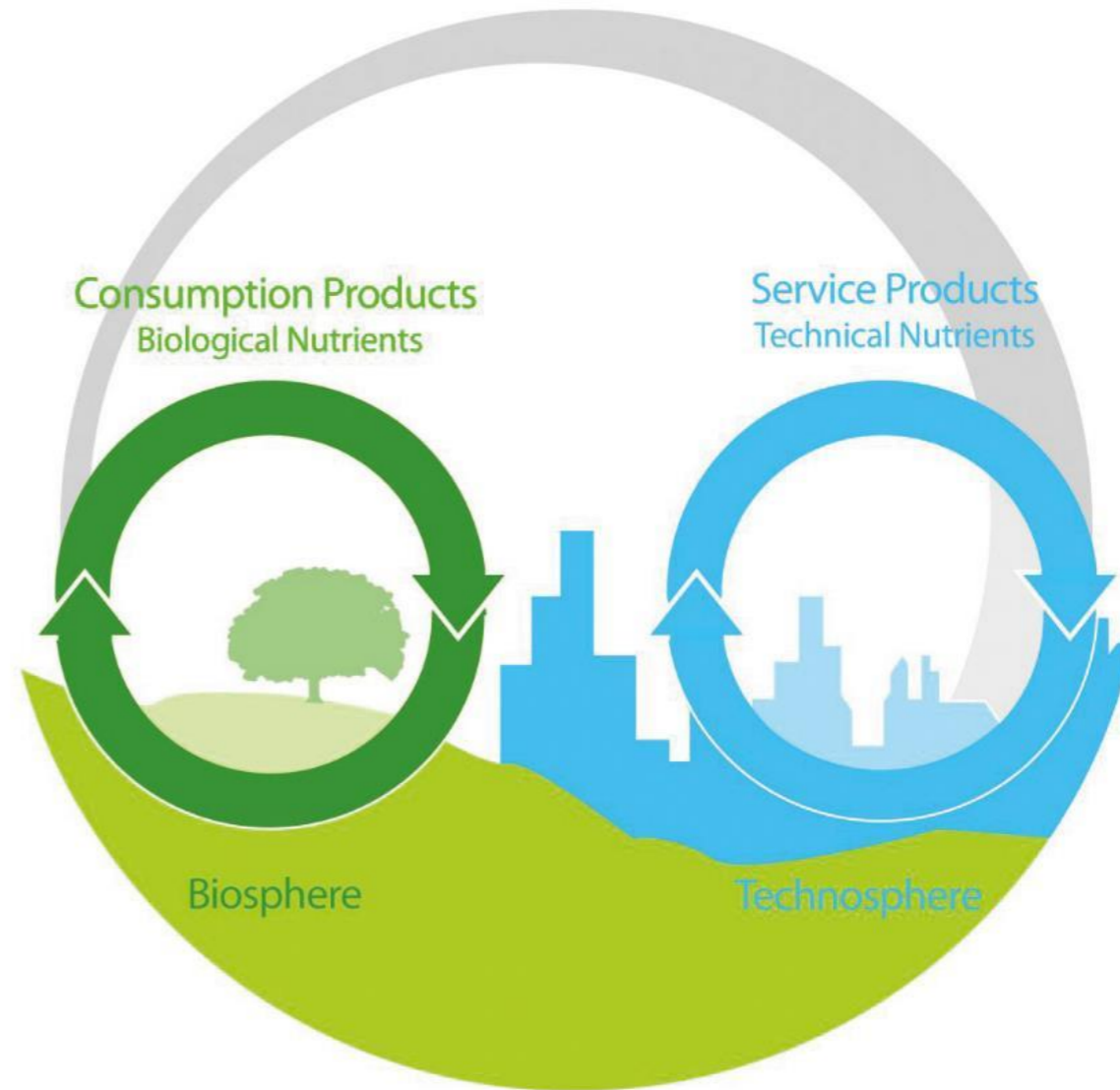






Cradle to Cradle

- **Three principles for the paradigm shift:**
- Waste equals Food
- Use of renewable energies
- Celebrate diversity

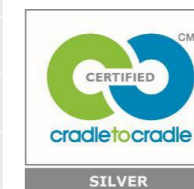


A decade with Cradle to Cradle certified®



C2C Certified® Product Standard

Theme \ Tier	Basic	Silver	Gold	Platinum
Material		✓		
Material Reutilization		✓		
Energy			✓	
Water			✓	
Social Responsibility		✓		



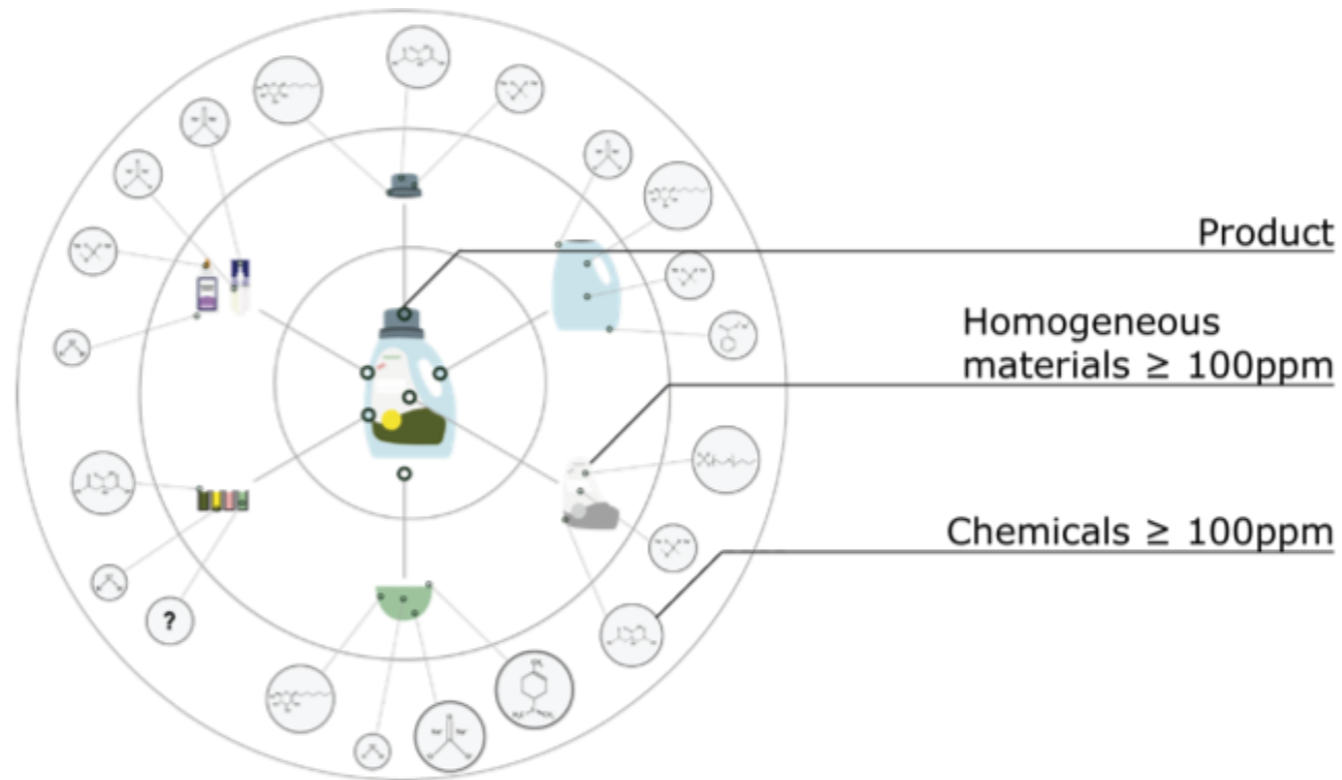
Theme \ Tier	Basic	Bronze	Silver	Gold	Platinum
 Material health			✓		
 Material reutilization				✓	
 Renewable energy				✓	
 Water stewardship					✓
 Social fairness				✓	



Theme \ Tier	Basic	Bronze	Silver	Gold	Platinum
 Material health				✓	
 Product circularity				✓	
 Clean air & climate protection				✓	
 Water & soil stewardship					✓
 Social fairness				✓	



Materials and Chemicals Subject to Review



Troldekt and material health

- 2012: Cradle to Cradle certified® silver for Troldekt, natural (unpainted)
- 2013: Cradle to Cradle certified® silver for Troldekt in standard colours
- One certificate for ALL Troldekt wood wool panels (B-s1,d0 + A2-s1,d0)

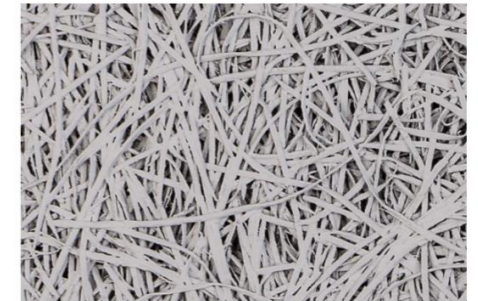
- Natural Wood
- White 101
- Grey 202
- Grey 208
- Black 207
- Clay 210



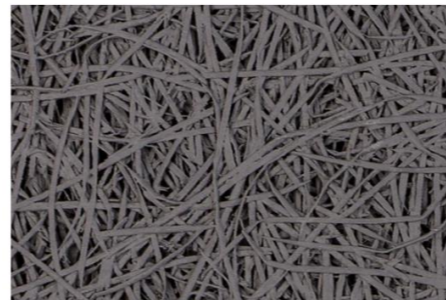
Natural wood



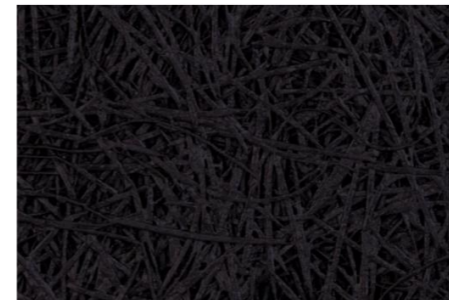
White 101



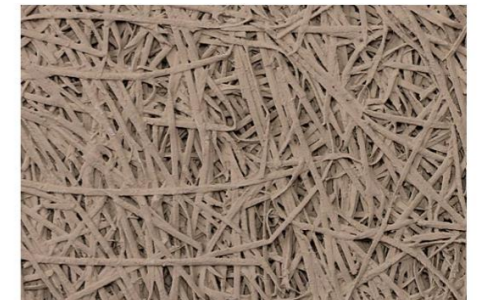
Grey 202



Grey 208



Black 207



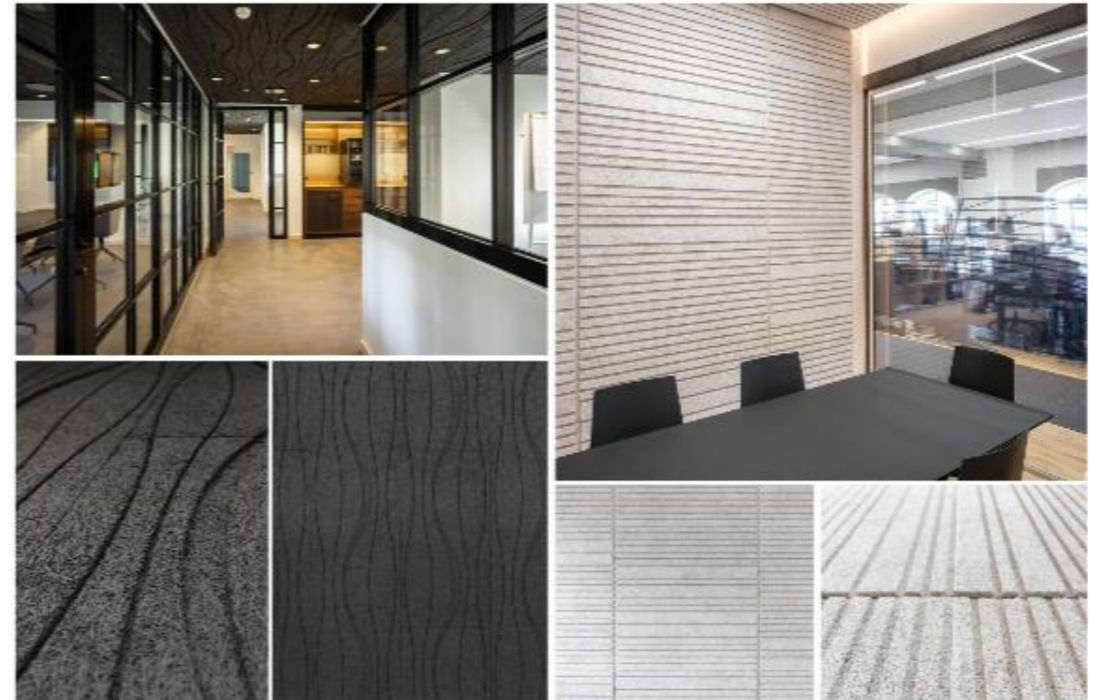
Clay 210



Troldekt and material health

- New painting painting facility in 2016
- Surplus colour collected and reused
- Waste (paint) reduced by more than 70%

- 2022 Cradle to Cradle certified® gold and durability achieved with new recipe 2022

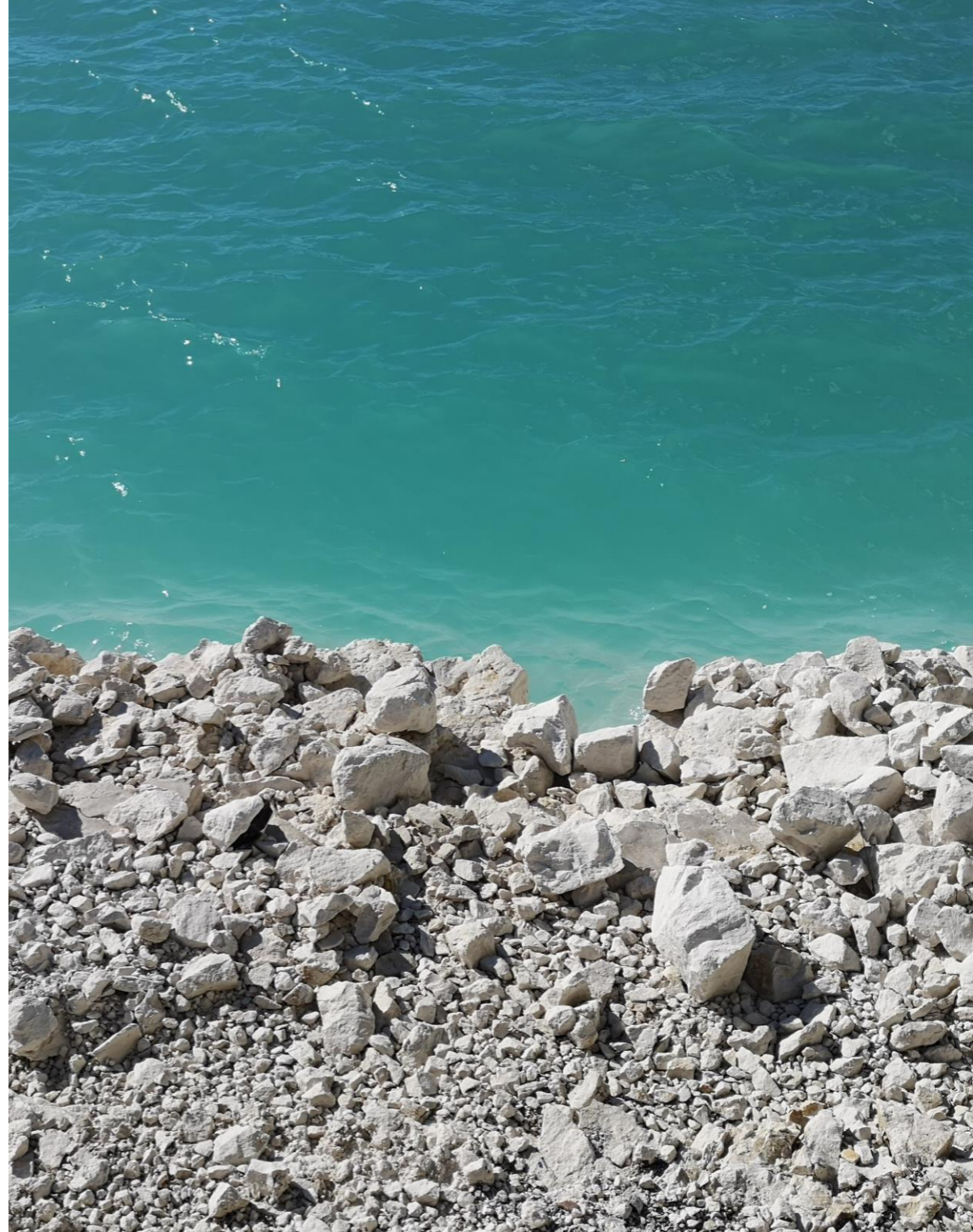


Troldekt: clean air and climate protection

- 2013: Energy from renewable sources (wind energy)
2021: Share of renewable energy
- With new technology, from 2017 to 2021, we reduced our energy consumption per unit by 29,2 procent
- CO² emissions derive from the cement production!
- C2C gold – incl. material health
- Fire performance without fire retardants (even A2)
- Longevity (50-70 years)
- Water resistance 98% (+/- 2) moisture

97,7%





New binder, 30% less CO₂



Troldtekt® based on FUTURECEM™



26%

less CO₂ than that of
Troldtekt based on
grey cement

38%

less CO₂ than that of
Troldtekt based on
white cement

An award winning innovation



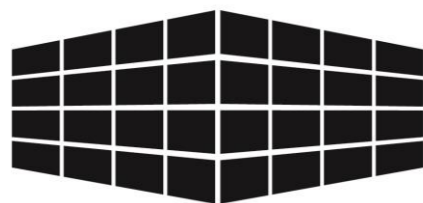
**Green
Product
Award**

Winner
2022



**Green
Product
Award**

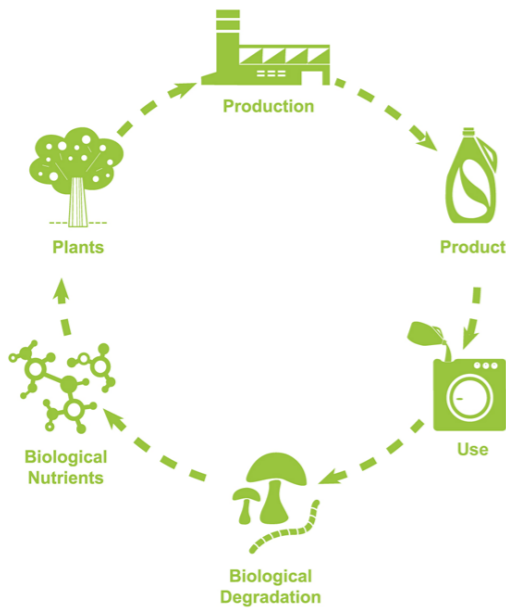
Best of
2022



materialPREIS2022
Anerkennung Kollektion

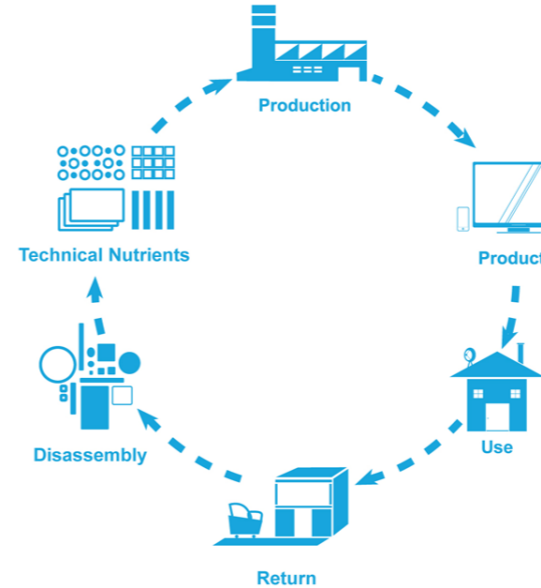


Biological cycle



Troldtekt panels can be safely returned to nature in the biological cycle.
Scalable?

Technical cycle



Troldtekt production waste is used in the production of new cement, replacing fossil energy sources and virgin raw materials.
To be scaled to post consumer products.

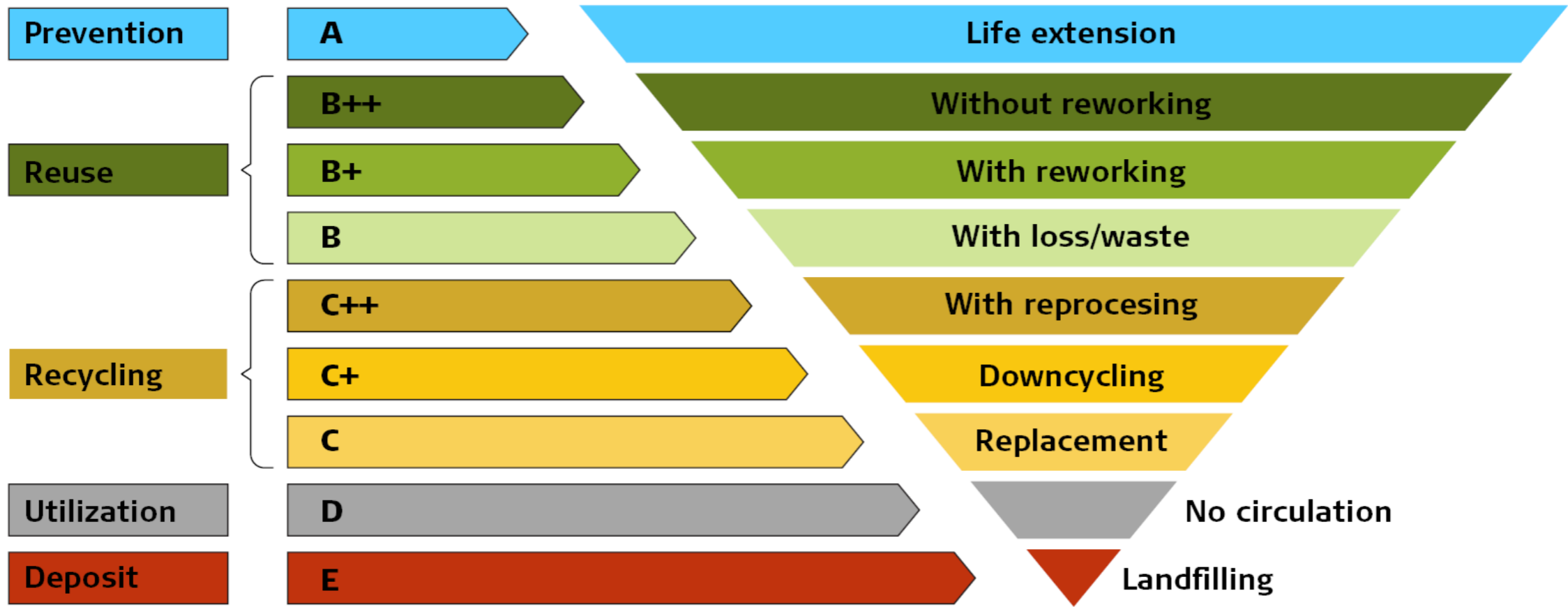
Existing buildings versus new buildings



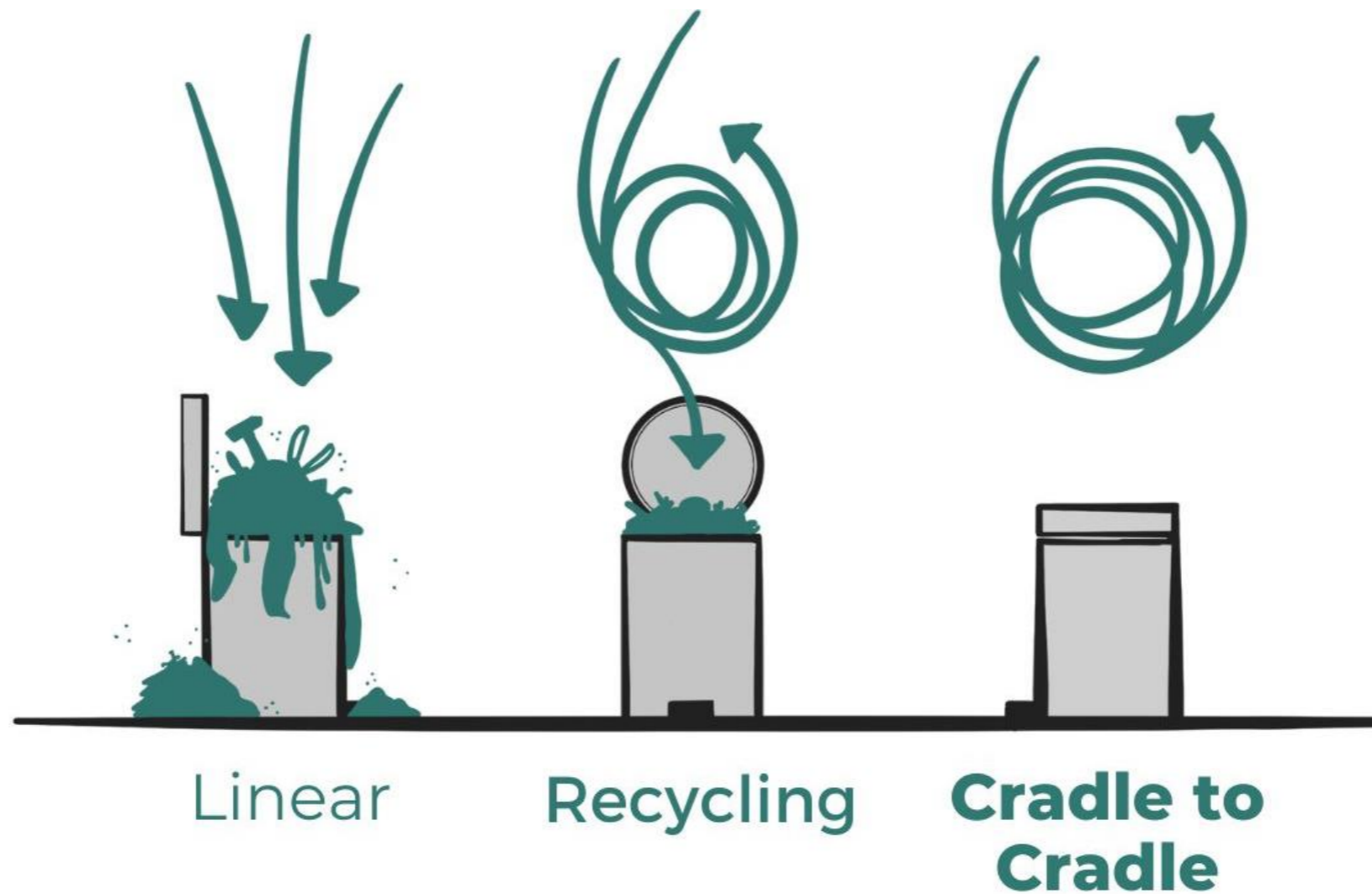
Limited control of material health (has the product been modified, painted etc.?)

Full control of material health (C2C, introduction of material passports etc.)

Troldekt End of Life scenarios



Linear versus circular







Thank you for
your attention!



Chris Webb
Head of Sustainability
TP Bennett

What needs to change in terms
of our approach to responsible
sourcing

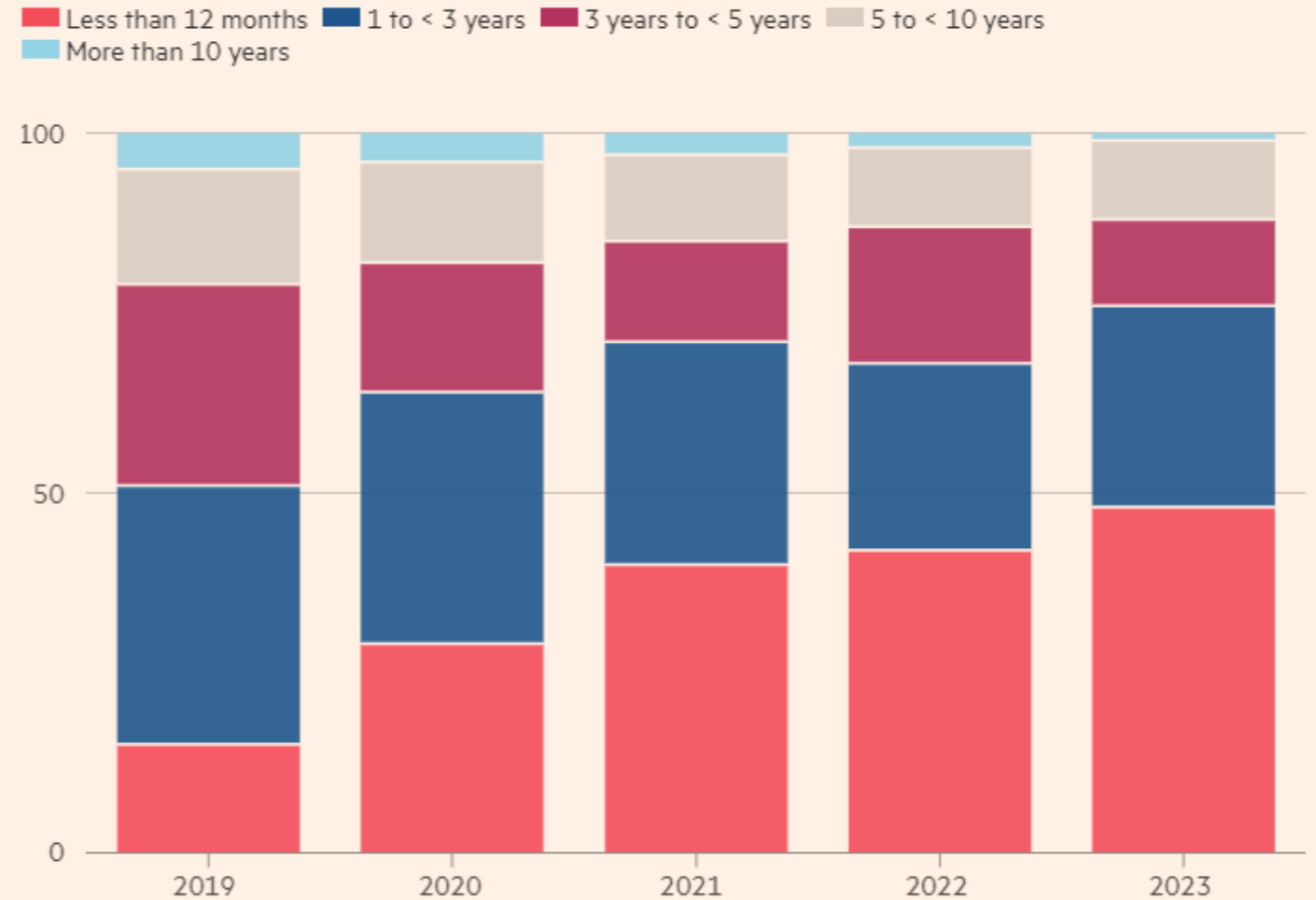


Collaboration in
sustainable fit-out:
Responsible Sourcing
Perspective

Christopher Webb
Head of Sustainability
tp bennett


Is there a sustainable fitout?

- 'All new developments to be net zero carbon by 2030'
- Longevity = sustainability
- Average UK office lease length 2 years 10 months
- 2 x fit-outs before 2030




How does that look each year?

You
Living your **life**




8
tonnes




20,508
petrol miles

tp bennett
business **operations**



360
tonnes



922,878
petrol miles

tp bennett
project **materials**



378,000 ¹
tonnes



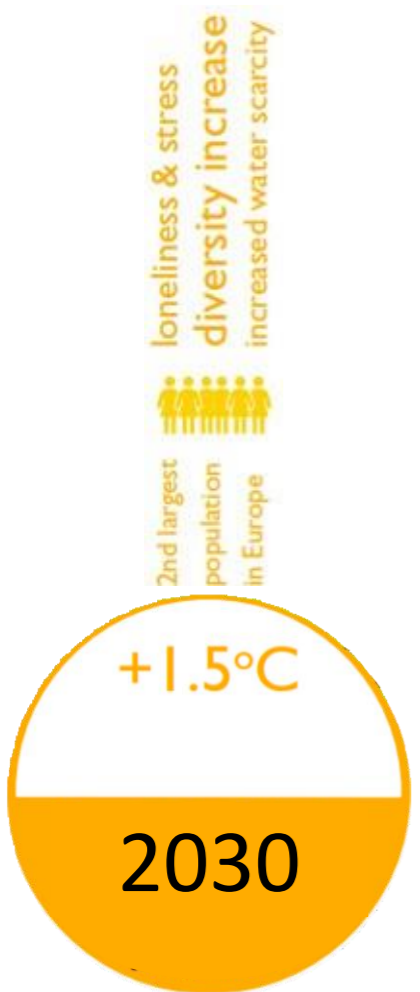
1 billion ²
petrol miles

- **Suppliers:** Our project material footprint is your operational footprint
- 87 exhibitors | 4,344 tonnes each

¹ Average of top 40 projects normalised by value for current financial year (20 architecture / 20 interiors projects). Average footprint used for architecture project: 13,500 t CO2e / Interiors 5,535 t CO2e.

² 969,021,450 petrol miles

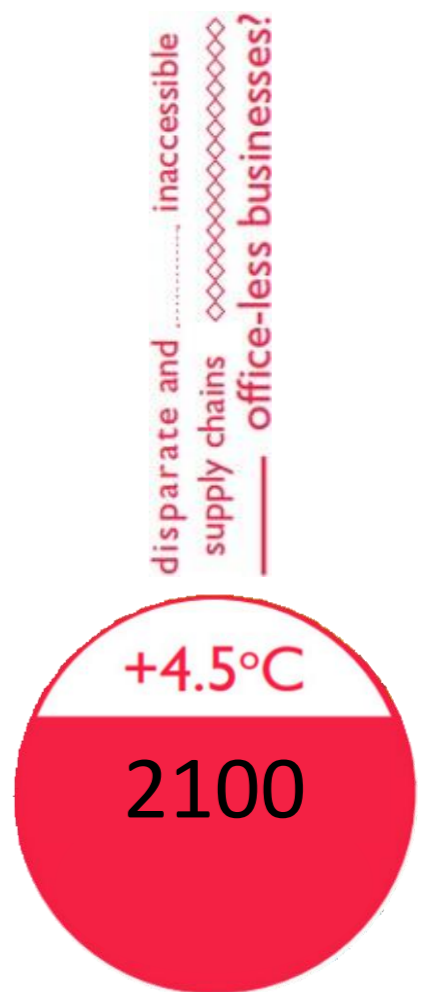
How will things look in **two fit-outs' time** (and beyond)?



Average global rise of 1.5°C predicted to manifest as 40°C UK summers, every three years



9 fit-outs' time



Are we designing for 2030?

Manchester 2030

UK has Europe's fastest growing & 2nd largest population
2m more >75 years old

Users' watches measure office indoor air quality
(similar devices currently £175)

Severe droughts
385,000 London businesses have long-term water use restrictions

Four-day working week common. Employees have multiple jobs – 'Employers' have less sway

Decline in energy-intensive sectors, e.g. steel ceramics, concrete
(poor adaptation to energy stress)

London 2030

2/3 of London flats overheating (regular indoor temps. >28°C)

For every degree above 20°C energy use rises by 350 MW - with associated cost increases



Complexity of supply chains...

Tracing a 'UK manufactured' carpet tile
(15-year warranty / 5,640 mile journey)



UK each year:

- 12million m² new carpet tiles
- 8 million m² downcycled carpet tiles

... And of products



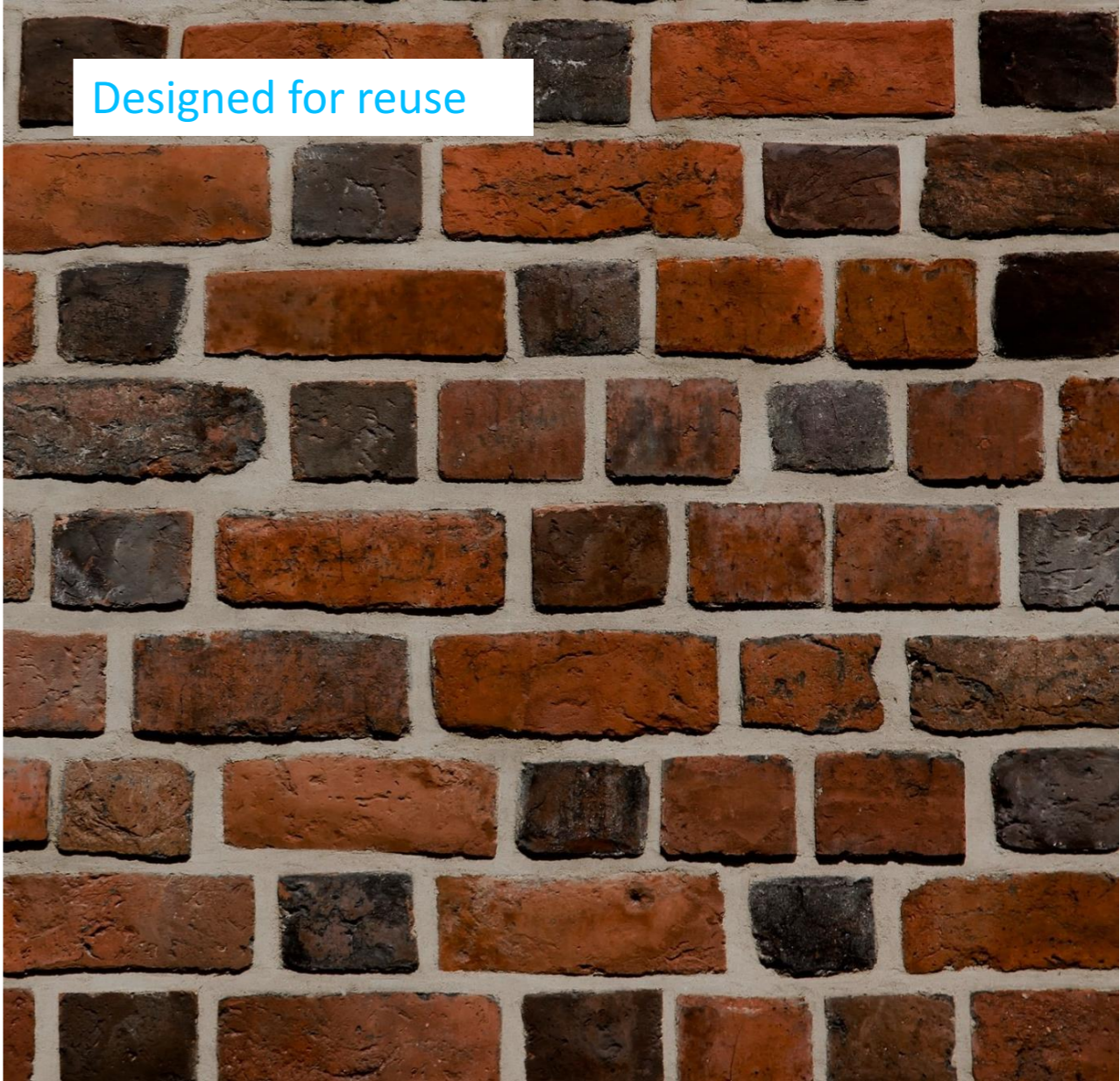
- >50 components form a typical office chair
- 10-to-12-year warranty
- 1.8m UK office chairs downcycled each year



... With single-use installations (not designed for the future)



Designed for rubble



Designed for reuse

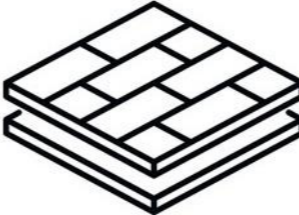
Results of current collaboration



Assets that won't perform in 2030



Manufacturing & supply chains complexity



Complicated products – but built to last!

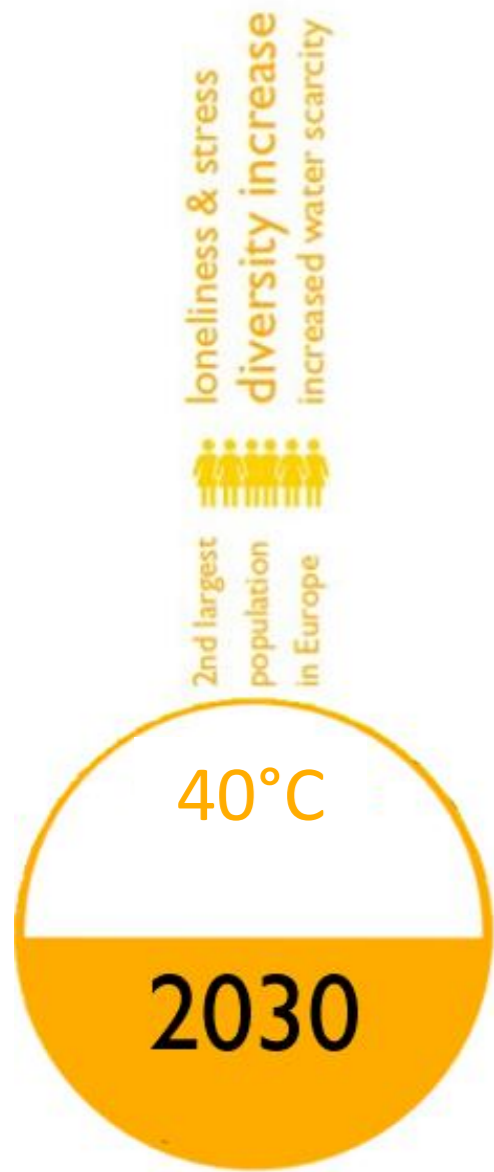


Short leases



'Disposal as Standard' mindset

Collaboration with our 2030-selves








As designers we must

- Design buildings which flex both in overall use - and use of individual spaces
- Standardise internal forms to support more replicable material use
- Commission pre-demo audits – target reuse of available materials in new design – take a risk!
- Prioritise bio-based materials (naturally more circular)
- Change mindset – new isn't always best, reused can be as good as new
- Design installs for demountability
- Record and track key specified products



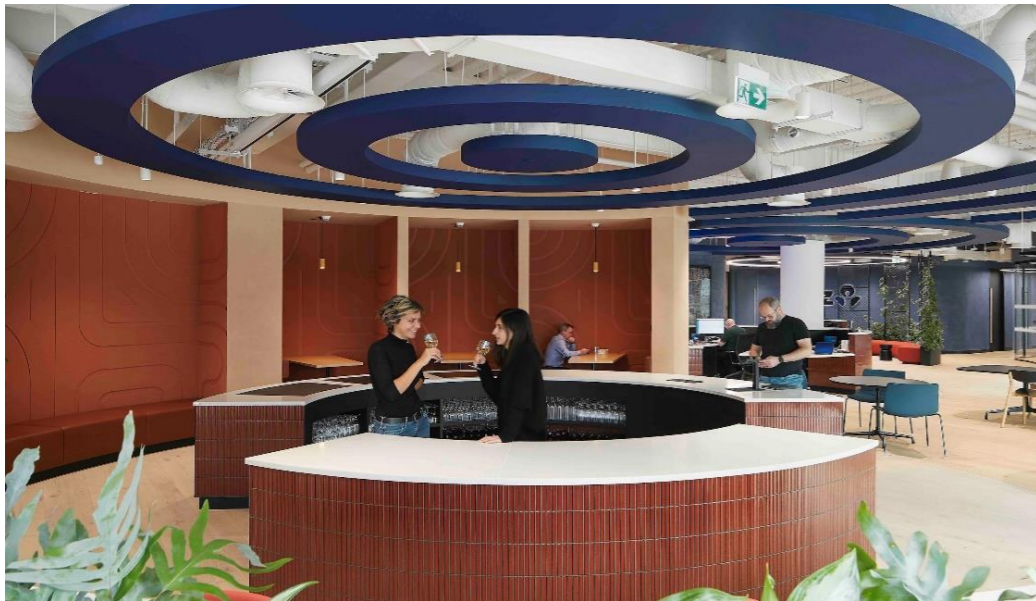
Living Materials Passports

<p>General</p> 	<p>Supplier Troldekt</p> <p>Contact Details Steve James Mansell; sma@troldekt.com</p> <p>Manufacturer / Location Troldekt / Troldekte, Denmark</p> <p>Model / Product name Troldekt Plus - Ultrafine 75mm, Grey 202, 35+40mm mineral wool backing layer</p> <p>Product Code (if applicable) K5 - tbc</p> <p>Year of Installation 2024</p> <p>End of Warranty 2025</p>	<p>Typical Office Floors - Acoustically Absorbent ceiling</p> 			
<p>Components</p> 	<p>Embodied Carbon A1-A3 2.45 kgCO₂e/m² (panel) 1.32 kgCO₂e/m² (typical mineral wool)</p> <p>Components & weight (kg/m²) Cement bonded wood wool - 15.2 kg/m² Mineral wool - 2.8 kg/m² Non-toxic PVA adhesive - negligible</p>	<p>Recycled Content 0%</p> <p>Coatings/Finishes Water based paint</p> <p>Water Consumption (if applicable) N/A</p> <p>Energy Consumption (if applicable) N/A</p>			
<p>Maintenance</p> 	<p>Cleaning Regular cleaning with other surfaces and as required. Light cleaning of the panels is easy using a vacuum cleaner with a brush nozzle. If vacuum-cleaning is not sufficient, you can wipe the panels using a well wrung cloth.</p> <p>Replacement Parts Replacement panels</p>		<p>Repair location (on site/locally/at factory) On site</p> <p>Repair carried out by Building FM team</p> <p>Other maintenance N/A</p> <p>Frequency N/A</p>		
<p>End of Life</p> 	<p>Recyclable Content 100% (in US, check locally)</p> <p>Take Back Scheme In progress - check at point of deconstruction</p> <p>Take Back Scheme Details Contact Troldekt at point of deconstruction</p>		<p>Fixing Method (e.g. screw type, adhesive, mechanical fixing) Fixed to wooden battens using screws</p> <p>Deconstruction drawing/instructions Remove screws to separate from wooden battens</p>		

Case Study – ANZ Bank, London HQ



- 80% existing furniture remanufactured
- 560 other products sourced from repaired/ reused/ largely-reused items:
 - 19% ‘reused with a clean’ only
 - 27% reused via a full refurbished
 - 54% from substantially refurbished parts



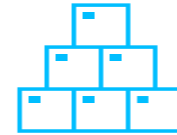
Summary – Keeping products and materials in-use

Developers / Agents



- Don't commission CAT A
- Agree reasonable 'delaps'
- Offer existing items to new tenants

Suppliers



- 'Centralised' refresh, repair & remanufacture facilities
- Take-back & resell as business opportunity
- Industry collaboration to share reused materials?!

Clients / Occupiers



- Request strong sustainability brief – check-in on it
- Accept reused products vs. 25-year warranties
- See products / materials as non-depreciating assets

Contractors:



- Install for demountability ('Screw, Don't Glue')
- Provide clear repair and reuse guides/ passports
- Help everyone understand and share the risk

Project Managers



- Get the brief right! (No "match base-build BREEAM" - PLEASE)
- Set circular targets
- Programme for, and coordinate to, facilitate reuse

Collaborative Aim:



“Make Reuse Practical Again”
(and profitable)



Thank you

tp bennett



Peter Kelly
Sustainability Manager, ISG

The critical elements of
sustainable fit-out

The critical elements of sustainability in fit-out

Peter Kelly

ISG

RIBA Stage 3



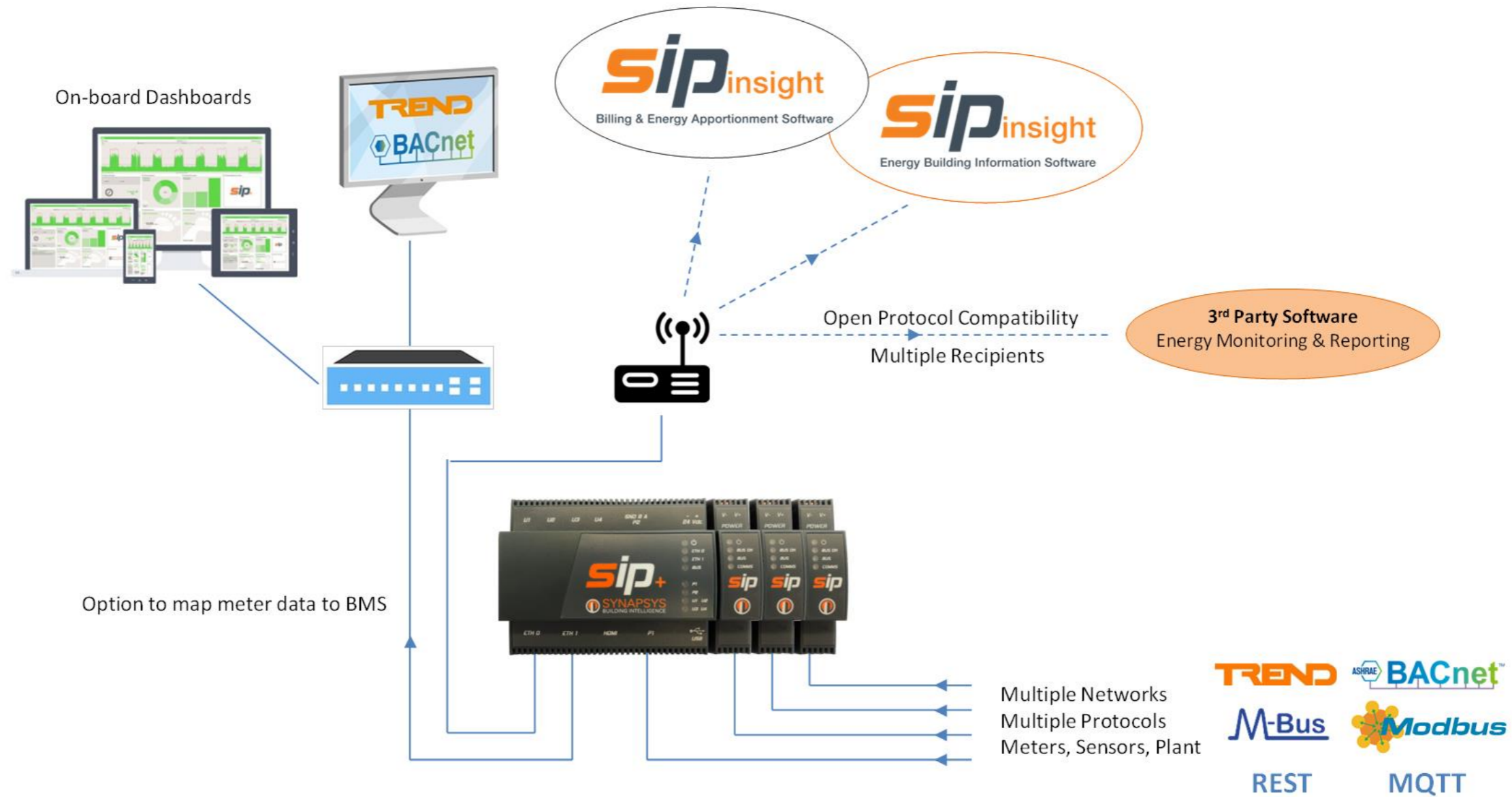


RIBA Stage 4

VALUE ENGINEERING



RIBA Stage 6



Summary

Key success factors:

- Early engagement
- Clear objectives and KPIs
- Collaborative culture

Compromise:

- When it comes to sustainability, be clear on what you are willing to compromise on and what you are not

Success is not immediate

- It's a minimum of 12 months post completion before you know if you have been successful or not

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FINISHES & INTERIORS SECTOR

Panel Debate

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Acoustic Solutions since 1935
By Kingspan

What can be done better

- Client would like to be challenged on their brief
- Better understanding of take back schemes
- More opportunities for early engagement

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FINISHES & INTERIORS SECTOR

We'll be right back

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