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K

Maximising building use

2024

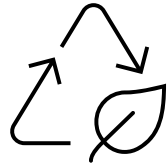
D

AT RKD WE ARE LOOKING AT THE POTENTIAL FOR RE-USE OF COMMERCIAL OFFICE BUILDINGS



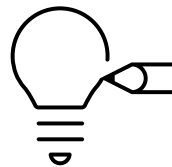
Styne House, Upper Hatch Street, Dublin 2
Client: IPUT Real Estate

Building Reuse



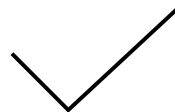
Sustainability

Building reuse saves embodied carbon, reduces construction waste and enables a circular economy.



Imagination

Re-use can improve existing structures into more attractive and better-quality assets.



Action

RKD have experience with this, and we are doing it with great results. What we are seeing is the potential to reinvent older, less-desirable buildings, into better ones.

“

These old buildings are at risk of becoming stranded assets. They aren't quite there yet, but in several years' time they could be left sitting empty because the tenants have moved out, and no new tenants want to let them.

Harry Browne ”

“

We have some fantastic vintage building stock in Dublin, and the opportunity is now to create meaningful, sustainable, and iconic new head-quarters.

Séamus Guidera ”



Harry Browne
Séamus Guidera
BP Article 29 May 2023

Link: <https://www.businesspost.ie/news/old-office-blocks-ripe-for-repurposing-says-leading-architect/>

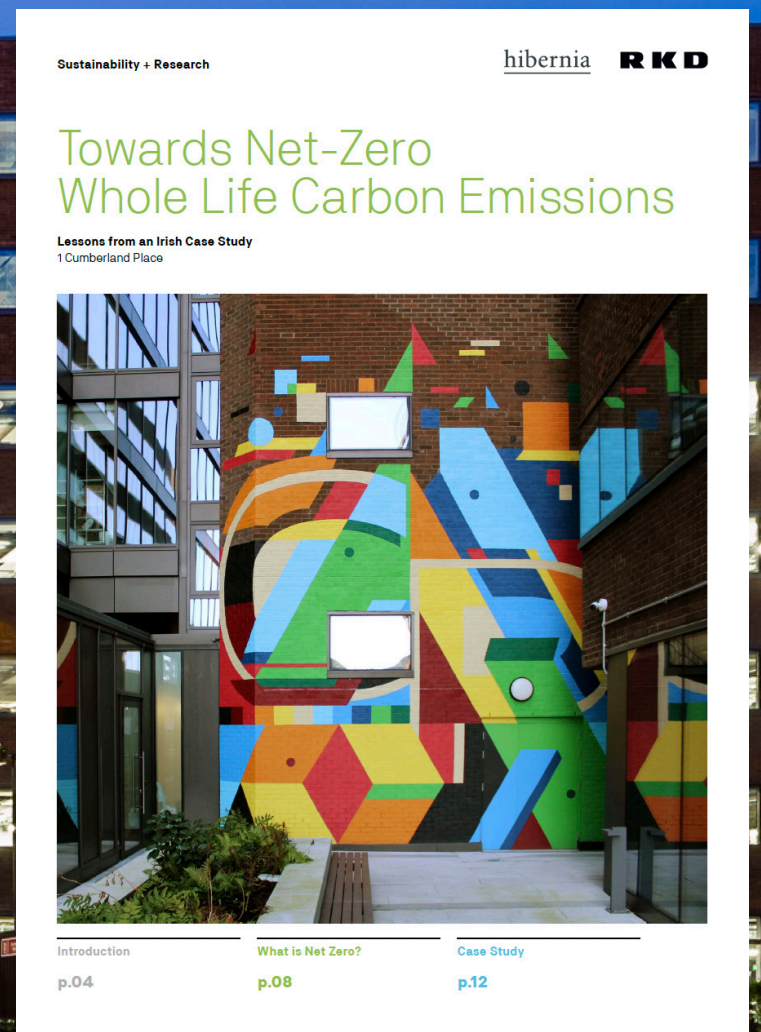
DRIVING EXISTING BUILDINGS PERFORMANCE TOWARDS NET ZERO IS POSSIBLE



The Irish Times

“Investment of €30m sees 1 Cumberland Place cut energy use by 63%”

<https://www.irishtimes.com/property/commercial-property/2023/11/29/investment-of-30m-sees-1-cumberland-place-cut-energy-use-by-63/>



1 Cumberland Place,
Towards Net Zero Case Study
Client: Hibernia Real Estate Group
Architect: MCA



Project: Dublin Landings
Client: Ballymore

Ireland's built environment

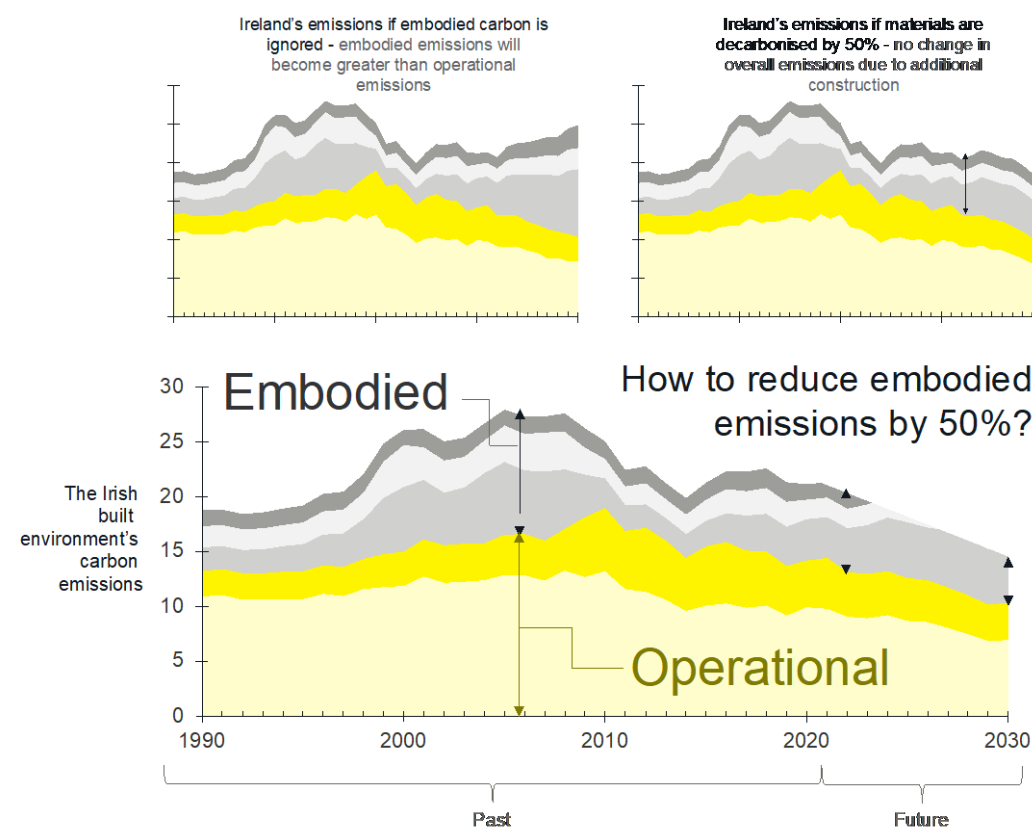
Ireland's built environment accounts for 37% of national emissions.

The split is 2:1 between operational and embodied carbon [1]. Although challenging to implement, the technology required to reduce operational emissions of our buildings exists. We have heat pumps, control systems, high performance glazing, a plethora of insulation products and more.

Reducing the emissions embodied in the materials we use to construct our built environment presents an entirely

different challenge. Ireland's national development and climate action plans are at a crossroads. The Irish construction sector is tasked with simultaneously reducing embodied carbon while constructing more floor space. This challenge has been investigated in the IGBC's whole life carbon roadmap and detailed in research from UCD [1]. The research concluded that:

Reducing emissions through material decarbonisation is insufficient. We need to also make best use of what we already have.



Data adapted from: R. O'Hegarty and O. Kimane, "Whole life carbon quantification of the built environment: Case study Ireland," *Building and Environment*, vol. 226, p. 109730, Dec. 2022, doi: 10.1016/j.buildenv.2022.109730.

Real estate match-making

Vacant spaces



- Low grade offices
- Decommissioned factories
- Derelict buildings
- ...

Emerging demands



- Energy efficient homes
- Educational buildings
- Manufacturing facilities
- Technology hubs
- Community centres
- A new workspace
- ...

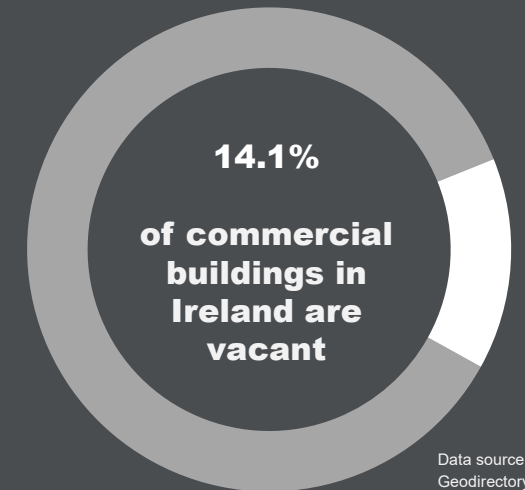


Design thinking



Understanding empty commercial space

Nationally ■ there are 210,607 commercial buildings in Ireland. 29,798 are vacant.



Data source:
Geodirectory 2023
Q2

The vacancy rate of older buildings is at risk of increasing further

Dublin ■ is the commercial hot spot. A quarter of commercial address point are located here and 650,321 m² of office space is vacant according to the JLL Dublin Office Market Report Q4 2023.

Data health check

Data on vacancy is a subject of intensive research with multiple different data sources used and analysed. The *Central Statistics Office* and the *Geodirectory* report different vacancy figures. For residential buildings there is almost a two-fold difference depending on source used. O'Callaghan and Stokes [2] succinctly describe the challenge of understanding the number and type of vacant properties: “*vacancy data has been produced as the de-facto data exhaust from other data collection priorities*” while Crowe et al. [3] reviewed the methods used across three international case studies.

What will our building stock look like in 2050?

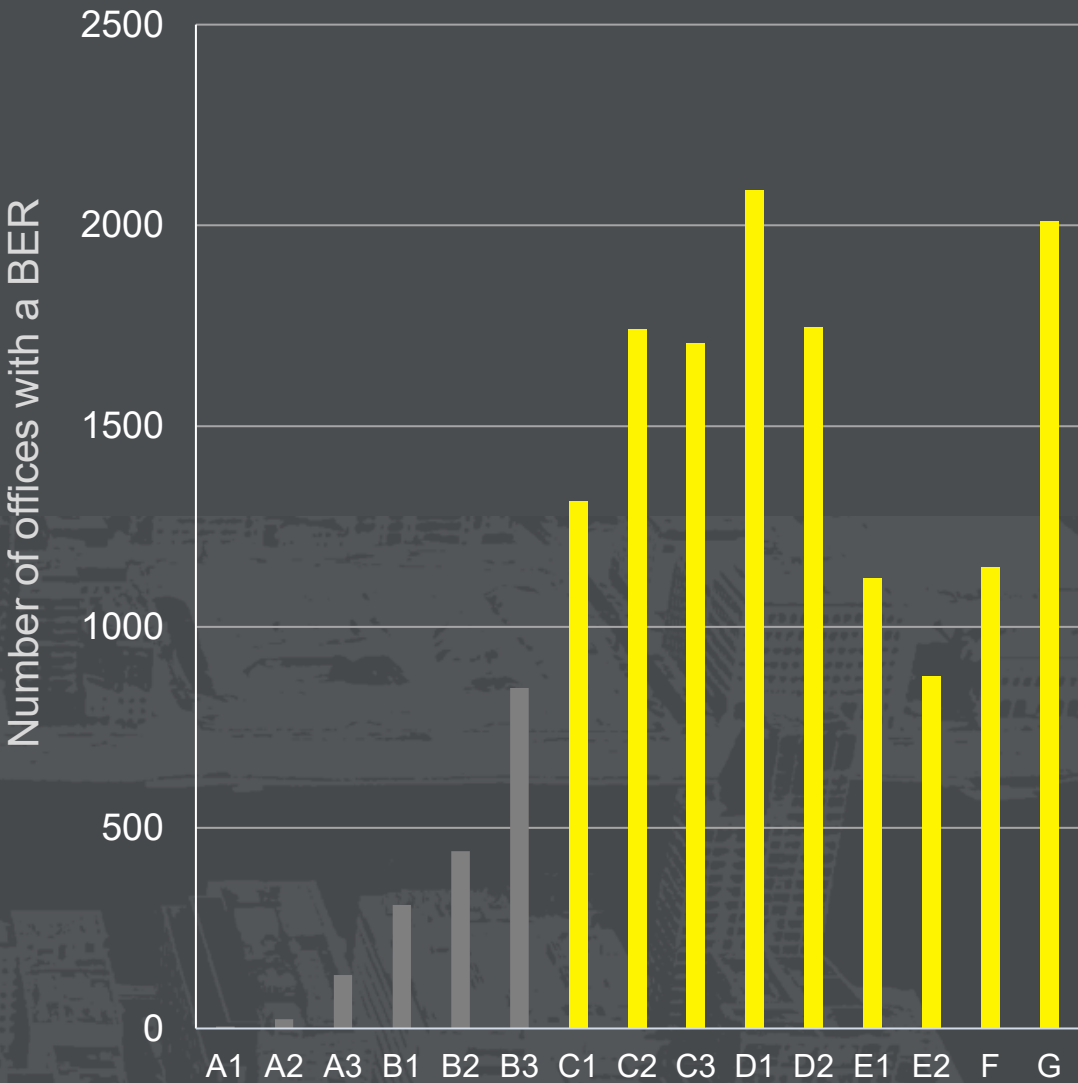
“New buildings are more energy efficient, but 80% of buildings that will be standing in 2050 have already been built.”

<https://www.theclimategroup.org/our-work/news/energy-efficiency-measures-will-lead-way-net-zero-buildings#:~:text=New%20buildings%20are%20more%20energy,emissions%20for%20decades%20to%20come.>

Solutions are needed to improve these older, poorer performing buildings

80%
of our buildings have already been built

Ireland’s office stock diagnosis



85%
of Irish office buildings are below a B energy rating

Data source: SEAI non-residential Ber filtered for offices

**THE MAJORITY OF OUR
COMMERICAL BUILDINGS
ARE FACING A CHALLENGE**

**WE BELIEVE THESE CAN BE
THE OFFICES OF THE
FUTURE**

Project: 6–8 Hanover Quay
Client: Bennett Properties
Shell and Core Architect: RKD
Airbnb Fit Out Architect: Heneghan Peng Architects



Project: 20 Kildare Street
Client: Kennedy Wilson

COMPLIMENTARY OLD AND NEW BUILDING CHARACTERS

Historic buildings have lots of character and many sites have development potential at the rear to increase density. Tenants can enjoy their own front door in a historic building, while also occupying clear, office floor plates.



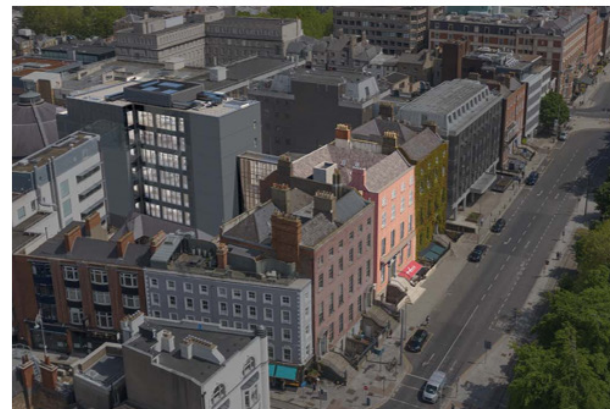
Project: 20 Kildare Street
Client: Kennedy Wilson

Some modern 1970's extensions at the rear of historic buildings can be upgraded to modern office standards. The grand Georgian rooms make for fantastic meeting rooms and breakout spaces.

VINTAGE BUILDINGS CAN MAKE GREAT OFFICE SPACE



Project: 16 St. Stephen's Green
Client: October Management



Project: 16 St. Stephen's Green
Client: October Management



What does the research say about the office?

Deloitte's 2023 global commercial outlook report [4] makes several suggestions for what the future might hold. The report cites a growth in the Industry and logistics sector, a need for more senior living spaces and a reshaping of the retail sector.

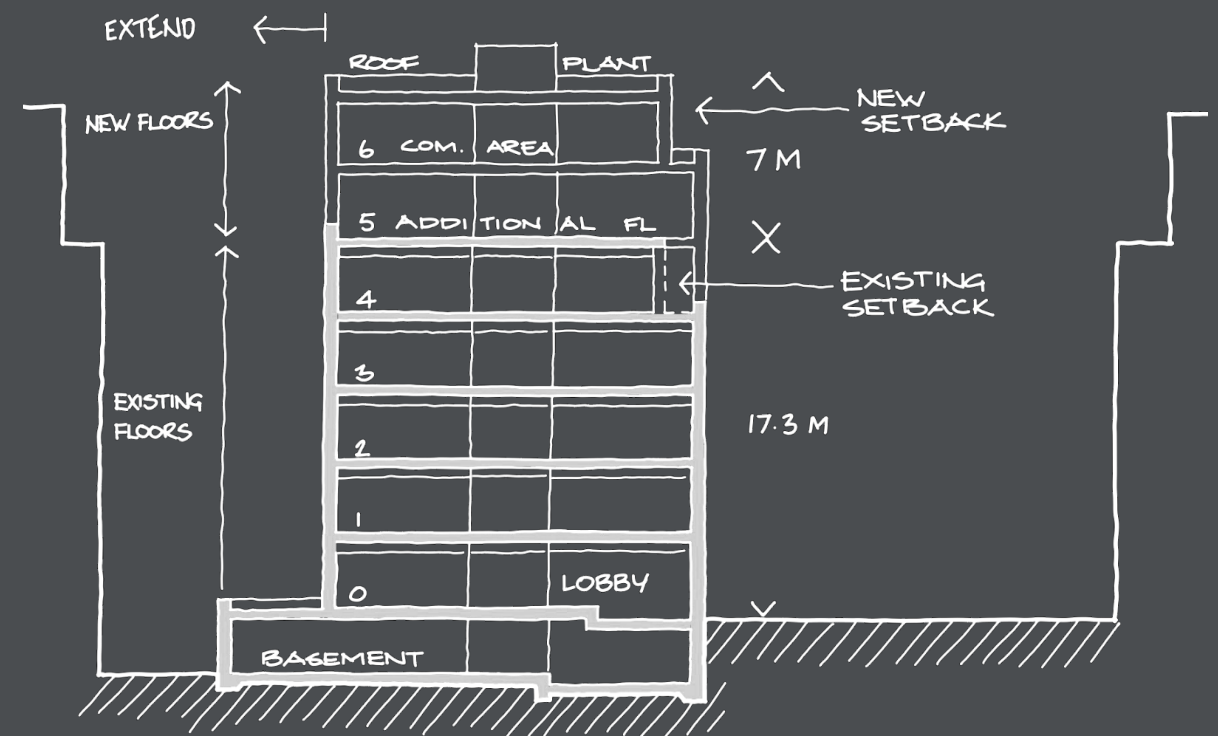
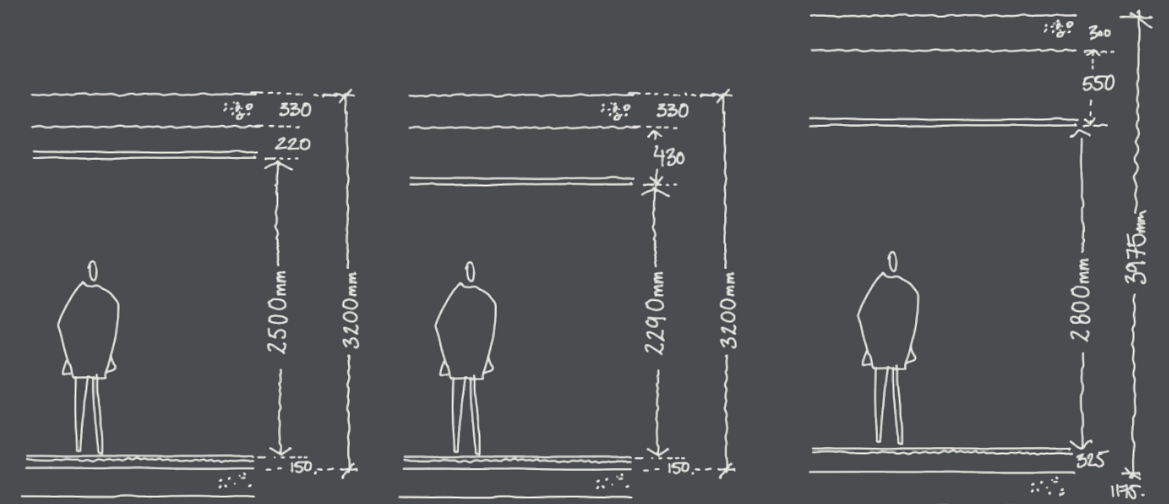


For office buildings, “flight to quality” is perhaps most apparent. High quality office space is desired by employees who require further justification to travel and leave the comforts of their home in an increasingly digitised workplace environment. This puts “low quality” office buildings at risk of obsolescence if they are not

upgraded – in terms of both efficiency and spatial experience.

Deloitte's Irish-focused report, cites similar conclusions [5]. It notes how high-quality real estate with top LEED certification is maintaining high rental levels with the older stock suffering from higher vacancy trends attributed to failure to meet “sustainability and occupancy requirements”. Older buildings with poor environmental performance appear to be the key driver for vacancy in the commercial building sector as they struggle to maintain current, and attract future, tenants. These conclusions were re-emphasized in another more recent Irish-focused Deloitte report [6], they note:

“ESG considerations are expected to remain a central part of future office development or even more so, office refurbishment.”



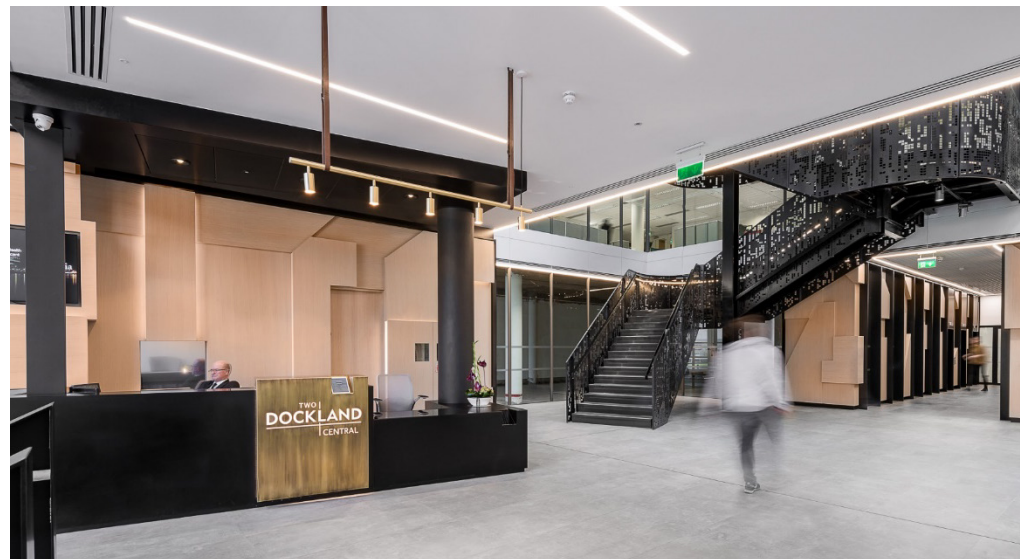
LIGHT, BRIGHT, BREATHEABLE SPACES



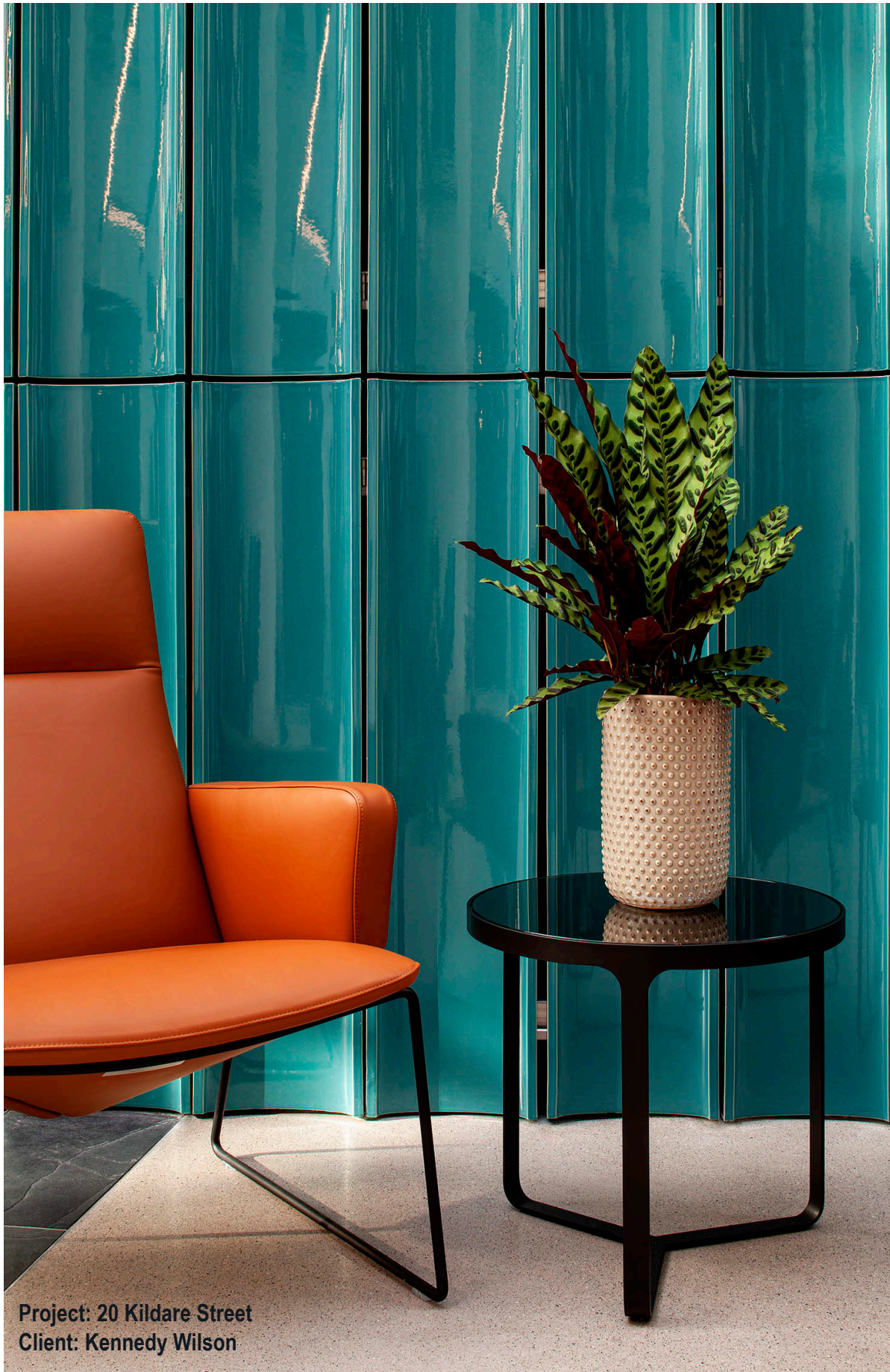
Styne House, Upper Hatch Street, Dublin 2
Client: IPUT Real Estate

Located in a prime Dublin location next to Iveagh Gardens, Styne House lacked street engagement, had limited wheelchair access at basement car park only, and several energy-related challenges including high solar gain on the south façade. RKD's design team opened the building to the busy street with a new reception and lift at street level while upgrading the south façade with solar controlled glazing and a twisted fin feature while upgrading the basement to achieve Part M compliance, adding state of the art end-of-trip facilities.

IDENTITY AND A RECOGNISABLE HQ FOR CORPORATE BUSINESSES



1+2 Dockland Central, Dublin 1
Client: Hibernia REG



Project: 20 Kildare Street
Client: Kennedy Wilson

THERE IS AN “S” IN ESG

**IN A MORE DIGITISED WORLD,
THE OFFICE CAN BE THE
PHYSICAL EMBODIMENT OF
YOUR SOCIAL VALUES**

Contemporary materials create a vibrant look
and feel that is attractive to building users.
People interact in spaces that are inviting



Project: One Microsoft Place
Client: Microsoft



Project: WeWork fit out @ 2 Dublin Landings
Client: WeWork

What else does the research say about the office?

There are several societal changes impacting the dynamic supply and demand of real estate, not least the change in how – and where – we work. When it comes to the future of work, and hence the workplace, the research to date is almost unanimous.

THE WORKPLACE OF THE FUTURE NEEDS TO BE FLEXIBLE AND (AT LEAST) PARTLY DIGITAL.

The precise wording differs from one study to the next, but the core message is similar: employee's needs, personalities and objectives are all different and the workplace needs to become more flexible to adapt to these needs.

Frank Knight / Yours [7]

"The role of the workspace is undoubtedly shifting in line with rapidly changing demands. Flexibility, wellbeing, and collaboration are in - while set desks, unoccupied workspace and grey, boring offices are out."

Baranski et al. [8]

"Theoretically, this could be accomplished with a variety of available workstation options or with dynamic, functionally flexible designs."

HKS [9]

"A workspace may slide between cloudprint and footprint, requiring flexible and holistic systems"

Tudu and Singh [10]

"It is evident that technological advancement revolutionized the work culture and changed the concept of work and business practices from manual to digital, and local to global."

Dittes et al. [11]

"Along with increasing flexibility, employees also crave balance and structure when, for instance, it comes to the blurred boundaries between private and business life."

Hassell [12]

"How flexible office buildings will create value in the new world of work"

McKinsey [13]

"...in recent decades may be influencing a shift that takes work to the people, for instance, in more flexible long-term remote or hybrid models."

Accenture [14]

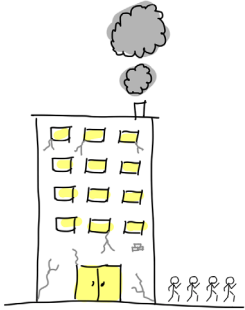
"supportive leadership and digital upskilling are 1.5x-2.5x as impactful in driving a "productive anywhere" mindset as the ability to work flexibly."

Deloitte [15]

"The ideal workplace is not just a physical site dictated by tradition, right, or necessity—but wherever work is best done."

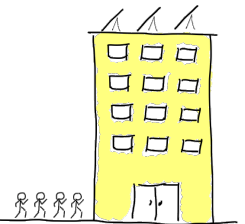


Old offices New spaces



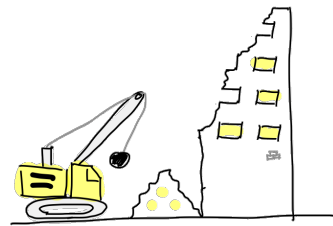
The **problem**

Vacant space is high and increasing. There are many low-grade offices destined for obsolescence - office spaces with high energy bills, low energy scores, outdated mechanical equipment, and deteriorating facades. Ultimately leading to a migration of tenants – amplified by the reduced demand for office space in a post Covid-19 era.



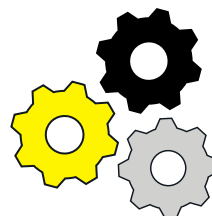
An **opportunity**

This embodied carbon could be saved by making better use of what we already have, while simultaneously reinventing the workplace, revitalising our cities, and honouring the identity of our past.



The status quo **solution**

As these undesirable offices empty out and fail to attract new tenants – owners/developers are left with a decision to make. One current solution is to demolish and build something in its place. A solution which results in a loss of history and embodied carbon.



RKD

Collaborative solution

Understand your building | **Commercial**
Revitalise your space | **Interiors + Workplace**
Ensure environmental credibility | **Sustainability + Research**



Project: 20 Kildare Street
Client: Kennedy Wilson



Project: 20 Kildare Street
Client: Kennedy Wilson

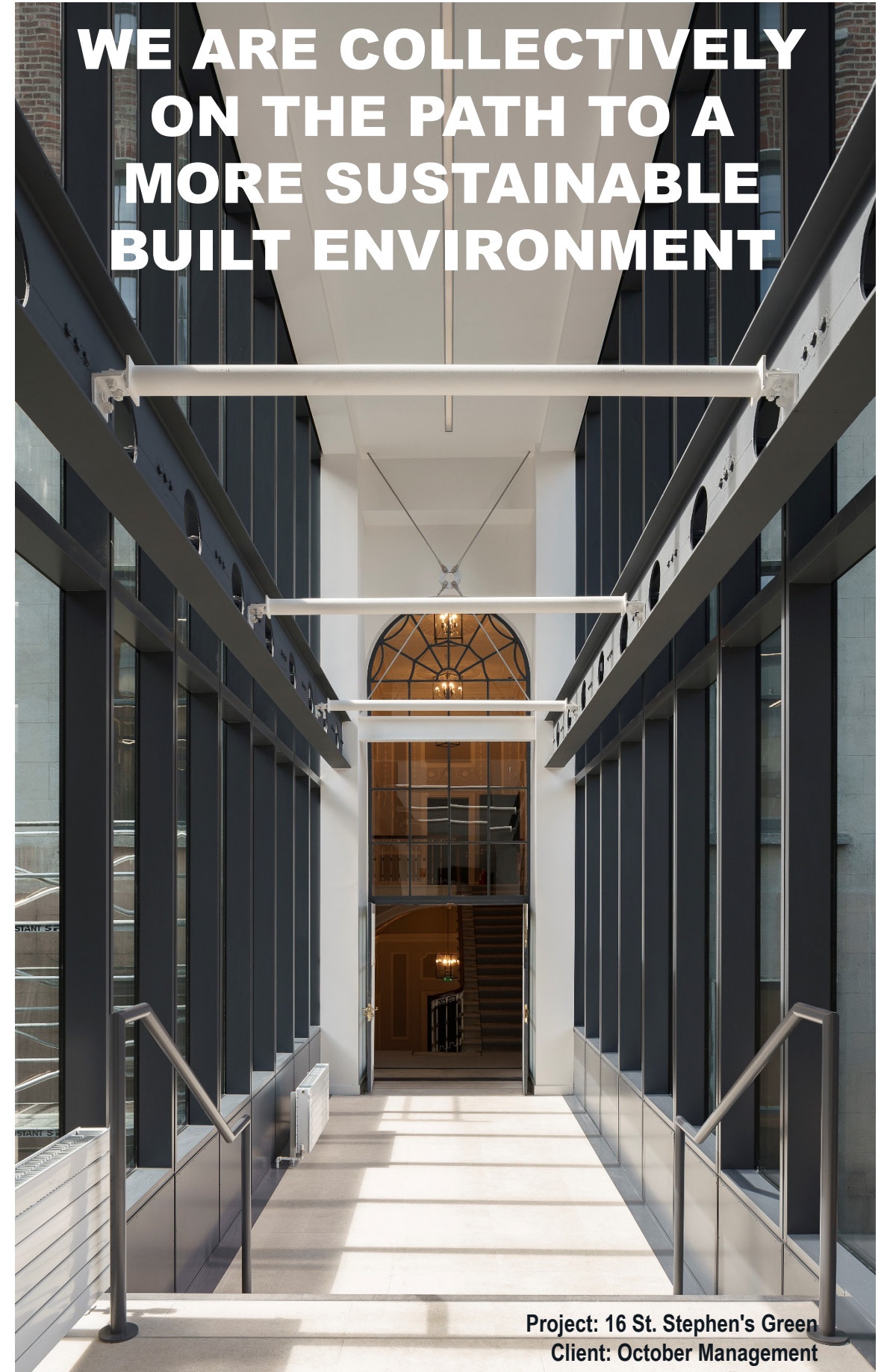
16 St. Stephen's Green

This prestigious protected structure overlooking St. Stephen's Green, was restored and connected via glass bridge to a new contemporary office space over seven storeys. The solution was certified to LEED Gold.



Project: 16 St. Stephen's Green
Client: October Management

**WE ARE COLLECTIVELY
ON THE PATH TO A
MORE SUSTAINABLE
BUILT ENVIRONMENT**



Project: 16 St. Stephen's Green
Client: October Management

Baggot Plaza

Built in the 1970s this 8,500 m² office, spanning across three buildings in a prime Dublin 4 location, was stripped back, extended on several sides, and fitted out. The solution doubled the floor area while retaining the existing building's shell and sunk carbon from 1970. A new façade was added – upgrading the building from an F to a B1 while double height spaces were introduced to increase daylight internally. The project was completed in 18 months, achieving a LEED Gold status in the process.



Making a case for Reuse

Incentives, risk, regulation and perception

The incentive to act comes in the form of risk, and there are two types that impact real estate – *physical* and *transitional* risk [16]

Physical risk is the risk imposed by a rapidly changing climate. The 100-year extreme weather events we designed for in the past might be a 60-year extreme weather event in today's climate. In Ireland, one major physical risk is the increase in frequency and magnitude of flooding. Met Eireann for example [17] report winter rainfall data on the island of Ireland from 1851 - 2016, noting how 2015/16 was the wettest winter on records, followed by winter 2013/14.

Transitional risks come in the form of rising costs of energy and the pricing-in of carbon emissions, building regulations, as well as market perception. They are essentially a response from authorities, or market players, to climate change, which impact how buildings should perform.

The cost of carbon

Buildings which require less energy are less costly to operate for asset owners and tenants and are, hence, more attractive. Less energy = less carbon = less cost.

Regulatory changes

The latest version of the Energy Performance of Buildings Directive (EPBD) [18], targets existing buildings for the first time. The worst performing buildings will have to be renovated by 2030 or before.

Market perception

Most of the world's largest companies have been measuring, reporting and trying to reduce their carbon emissions for several years. Emission accounting frameworks such as the GHG protocol [19] divide emissions into three – Scope 1, 2 and 3. Scope 1+2 emissions deal with the operational carbon cost of buildings. The worse our buildings perform the higher our scope 1+2 emissions will be.

Scope 3 emissions capture the upstream and downstream emissions – including embodied carbon. For the real estate sector, this is where the incentive to renovate rather than demolish and redevelop lies. Renovation requires considerably less materials, and hence embodied carbon emissions. Repurposing a building means lower scope 3 emissions.



**Reinventing
buildings works well
for placemaking**

Project: 20 Kildare Street
Client: Kennedy Wilson

Key Challenges



There is no universal solution for building reuse

- Different buildings require a different approach.
- Categories of old building type have consistent themes:
 - a) Heritage / historical buildings
 - b) Vintage 60s – 90s blocks
 - c) Modern 00s blocks



Potentially cost prohibitive

- There is hesitancy to spend ~ 60-80% of cost of new build and the end-product is sub-standard to a new build with low floor to ceilings, and narrow floor plates.
- Cost certainty is challenging.
 - High contingency required.
 - Unknown building conditions
 - Hard to predict compared to new building projects
- Smart technology and solutions are needed to make this work.



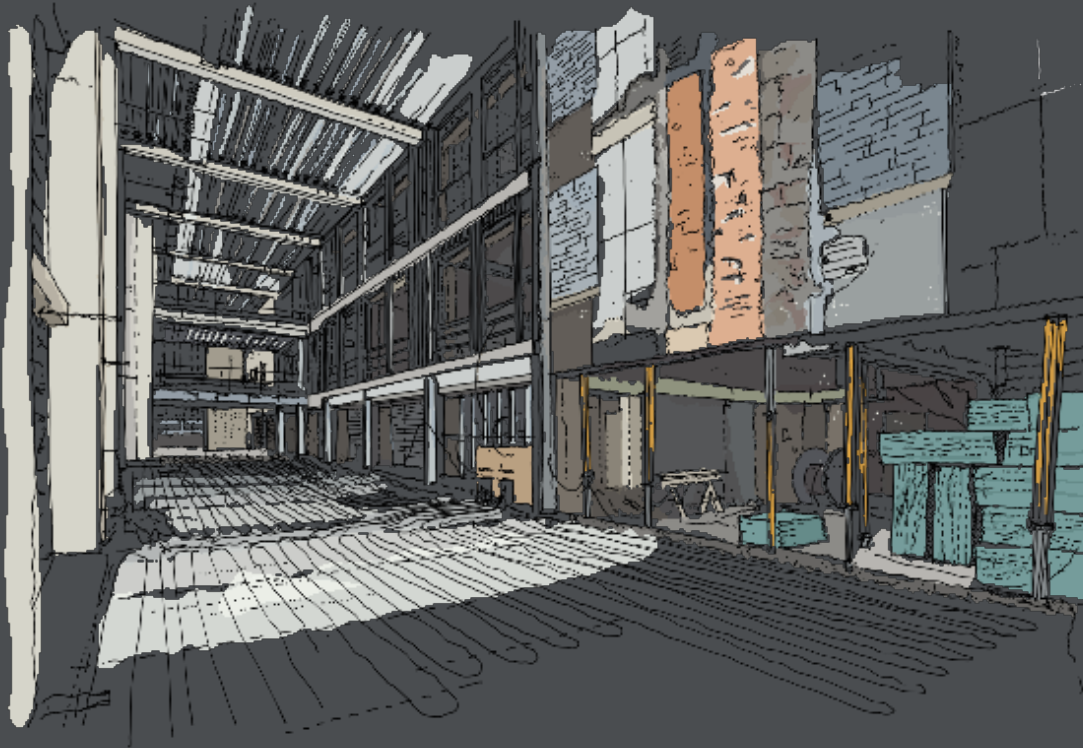
Building Regulation Challenges

- Older buildings generally may not comply with today's building regulations and may require upgrades to be compliant
- Building control / DAC / Fire / Heritage and planning – Costs
- Condensation / façade / building conditions



Project: 6–8 Hanover Quay
Client: Bennett Properties
Shell and Core Architect: RKD
Airbnb Fit Out Architect: Heneghan Peng Architects

References



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This project was completed as a part of RKD's Research Hub programme. This initiative empowers practitioners throughout the firm to invest focused time and energy into exploring topics that encourage innovation and a culture of curiosity. Contact us to learn more about this programme → mail@rkd.ie

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We don't just do office conversions...



Data Centres + Technology | Life Sciences | Manufacturing + Logistics | Commercial | Education + Healthcare | Workplace + Interiors | Sustainability + research