



# **TIME FOR ACTION:**

A MANIFESTO  
FOR CHANGE

# CONTENTS

06

## **NOW IS THE TIME FOR ACTION**

Introduction

08

## **THE CONSTRUCTION LEADERSHIP CHALLENGE: DELIVERING ON THE AMBITIONS OF THE CONSTRUCTION SECTOR DEAL**

Andy Mitchell, Co-chair Construction Leadership Council  
and CEO, Tideway

10

## **THE QUALITY CHALLENGE**

Robin Nicholson, Partner at the Cullinan Studio

12

## **THE CLIMATE CHANGE CHALLENGE: HOW CAN THE INDUSTRY HELP ACHIEVE A BUILT ENVIRONMENT FIT FOR THE FUTURE?**

Cristina Gamboa, CEO World Green Building Council

14

## **REBEL LEADERSHIP: THE CHALLENGE TO ACHIEVE REAL CHANGE**

Kirsten Henson, Director KLH Sustainability

18

## **THE URBAN CHALLENGE: CITIES FOR THE FUTURE**

Professor Peter Madden OBE, Cardiff University

20

## **THE RETROFIT CHALLENGE FOR HOUSING**

Chris Jofeh, Global Retrofit Leader, Arup

22

## **THE FUTURE PRACTICE CHALLENGE: CONNECTING EDUCATION, RESEARCH, PRACTICE & PROFESSIONALISM**

Flora Samuel, Professor of Architecture in the  
Built Environment at Reading University

24

## **UN SUSTAINABLE DEVELOPMENT GOAL 13: THE COMMITMENT CHALLENGE**

Emma Howard Boyd, Chair of the Environment Agency and  
UK Commissioner to the Global Commission on Adaptation

26

## **CONCLUDING THOUGHTS**





## FOREWORDS

Futurebuild was established with a real purpose, to tackle the biggest issues facing the built environment. It’s essential to us that this event not only talks the talk, but walks the walk when it comes to uniting people and delivering real change. A key part of this is our ecobuild conference which sits at the heart of Futurebuild.

This year we’re more determined than ever that it’s Time for Action. We can’t ignore the challenges facing the world and it’s the responsibility of each and every one of us to make sure we have a sustainable future. Our conference programme brings together leading speakers from across the world to debate and discuss everything from housing to cities, build quality to construction leadership. These people are disruptors, pioneers, rebels and visionaries.

In this paper you can read their thoughts and understand more about how they think we can face these challenges head on and work together to make a real difference.

**MARTIN HURN, MANAGING DIRECTOR,  
FUTUREBUILD EVENTS**

There is no doubt that the construction sector plays a crucial role in creating a better, more sustainable economy – and society more generally.

Having worked with businesses across the built environment for the past 20 years, we’ve seen sustainability move to the top of the agenda and become the single most important challenge for the entire industry.

Today, it is widely accepted that wholesale change is needed to make a meaningful impact. But it’s clear that no one party has the solution, it is a combination of collaboration, open-mindedness and an entrepreneurial spirit that will be the key to success. That’s where Futurebuild comes in. It brings together the most influential thinkers and decision-makers to explore and tackle the sector’s biggest issues, enabling the kind of much-needed cross-industry discussion and debate that is necessary for stimulating real, positive change.

Through this whitepaper, we have worked with Futurebuild to deliver a collection of inspiring and thought provoking opinion-pieces from industry leaders that, together, create a real roadmap for change.

From facing up to current weak spots, to being honest about type of future leadership needed to deliver a better tomorrow, the collaborators in this paper aren’t afraid to pose some big questions and offer some radical solutions – and they don’t pull any punches.

But with the uncertainties and difficult decisions currently in front of the industry, now is surely the time for bold and brave thinking.

**BARRY MAGINN,  
ASSOCIATE DIRECTOR, TANGERINE**





## NOW IS THE TIME FOR ACTION

### INTRODUCTION

The challenge to ensure that the world has a sustainable future really is on.

Through the ecobuild conference, Futurebuild has created a platform, to not only debate and discuss the biggest issues facing the built environment, but also to create an action plan for real change. There's no doubt that this will only succeed with positive collaboration through a common understanding and commitment.

This whitepaper unites some of the most inspiring and forward thinking minds in the industry – all of whom have played their part in the ecobuild conference at Futurebuild 2019. All are striving for a better, more sustainable built environment and all have a firm commitment to tackling the biggest challenges facing us head on.

From ensuring we have the leadership we need to meet ambitious construction goals, to how we can make radical changes that enable us to deliver the houses we so desperately need, the collected thought pieces in this paper are deliberately designed to inspire and challenge industry to step up and take action today for a better tomorrow.





## THE CONSTRUCTION LEADERSHIP CHALLENGE: DELIVERING ON THE AMBITIONS OF THE CONSTRUCTION SECTOR DEAL

With the launch of the Transforming Construction Alliance (and the confirmation of bids for the first round of R&D funding), the intent of the Sector Deal is increasingly clear. There are a range of opportunities available to our industry if we are successful in delivering on the ambitions of our Sector Deal.

Before I get into the detail of what the Construction Leadership Council (CLC) is doing to drive the Sector Deal, it's worthwhile reminding ourselves what the deal is for – and where the focus lies. The overriding priority for the deal is to deliver better performing assets at a lower cost – meaning we can deliver more houses and schools and more road and rail capacity to UK plc.

In doing so, we will create better jobs, use less energy and will deliver better value from the UK's £600 billion infrastructure investment pipeline.

The CLC's role has been to build a shared vision between government and industry and to focus attention on core areas of digital, manufacturing and asset performance. In driving this agenda, we have always kept in mind the diversity of the industry and the very real challenges faced by businesses, whether in connection with skills, payment or investment.

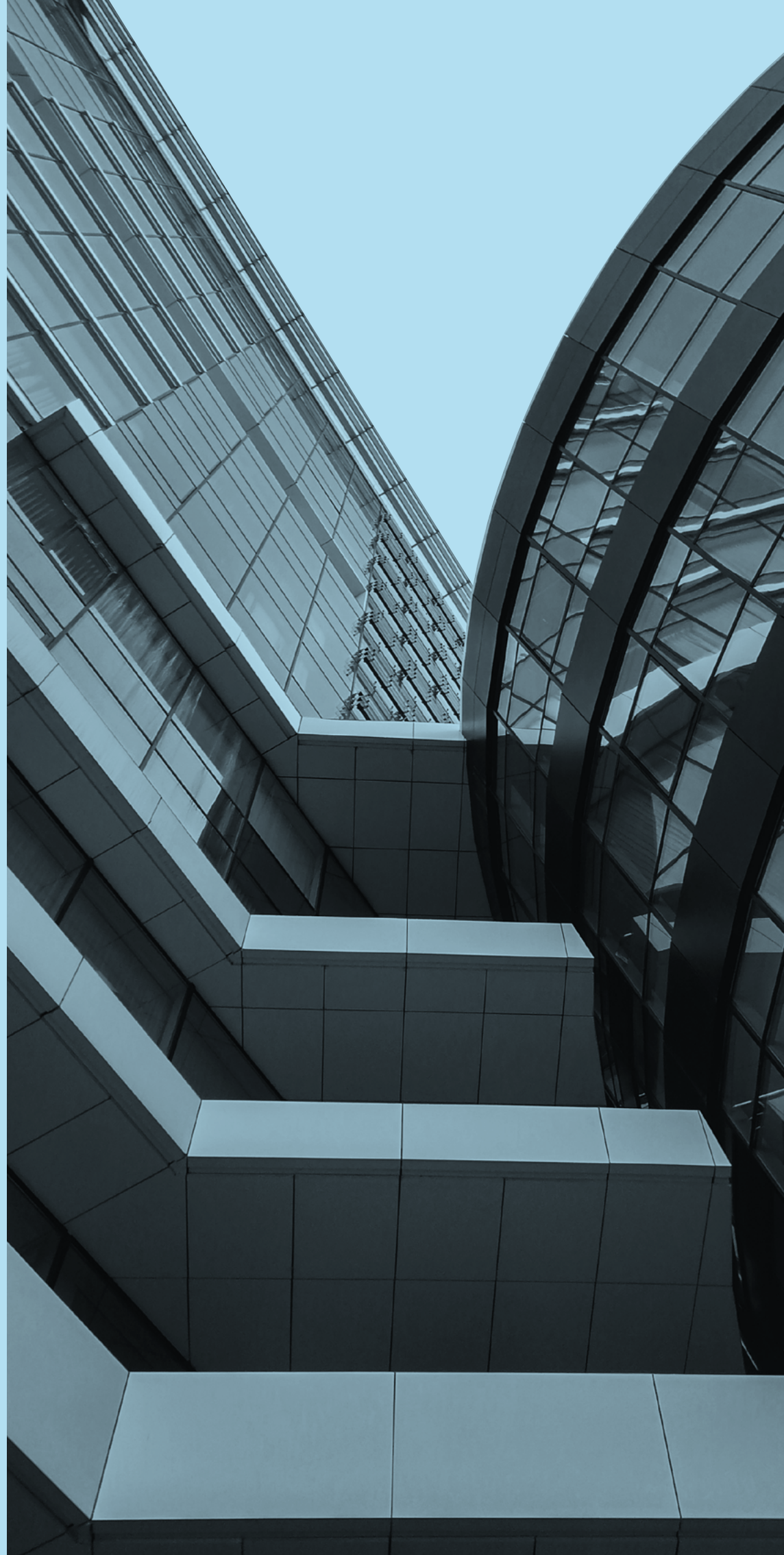
### ACHIEVABLE TRANSFORMATION

To achieve the industry transformation that we all want will need a combination of focused innovation, particularly on new products and processes and digitised methods of construction. It will also rely on new approaches to procuring construction – backed up by a presumption for offsite methods and the development of long-term, collaborative relationships between clients and their integrated supply chains. CLC-backed initiatives including the CITB's updated skills strategy, the Transforming Construction Alliance and the Procure for Value initiative support this direction of travel.

These are ambitious proposals, but practical steps are already being taken. There is little doubt that, with Brexit upon us, there has rarely been a more challenging time for the industry. My predecessor, Andrew Wolstenholme, coined the phrase, 'never waste a good crisis' at the start of the last recession, and I am making it my mission as vice-chair of the CLC to make sure that the industry is able to participate in and take advantage of the opportunities offered by the Construction Sector Deal.



Andy Mitchell,  
Co-chair Construction  
Leadership Council and  
CEO, Tideway





## THE QUALITY CHALLENGE

It is twenty years since we have had such a conjunction of interrelated reports and initiatives to transform the construction industry into a performance and value-based industry. However good some parts are both at the high end of global offices and at the local domestic end, generally our industry works in a lowest first cost fragmented way without any performance verification, a situation no other industry could tolerate.

This moment has arisen due to the scandal of the Scottish PFI School scandal as documented by Professor John Cole (Feb 2017) and the Grenfell Tower fire (June 2017) on which Dame Judith Hackitt reported (May 2018). Government have undertaken to implement in full Hackitt's recommendations, including "putting residents at the heart of the new system of building safety."

Twenty years ago, Sir Michael Latham's comprehensive 'Constructing the Team' (1994) introduced us to 'Balancing Price and Quality' selection and partnering; it led to the establishment of the Construction Industry Board (1995) that brought the 5 umbrella bodies together with Government. In his report 'Rethinking construction' (1998) Sir John Egan introduced Key Performance Indicators (KPIs), but as a manufacturer Egan was more focussed on the construction phase and less interested in design (and briefing) or the building in use. In response the Construction Industry Council led the development of the Design Quality Indicator (DQI) to establish a more inclusive brief and a monitoring process over the life of the project.

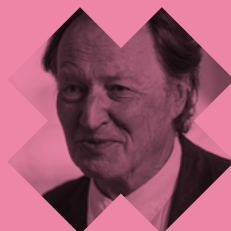
Last year Hackitt introduced us to the 'Golden Thread', a phrase that caught our collective imagination - "There needs to be a golden thread for all complex and high-risk building projects so that the original design intent is preserved and recorded, and any changes go through a formal review process involving people who are competent and who understand the key features of design." This radical and most welcome directive overturns most current procurement and delivery practices, but our challenge is how to transform our industrial culture into something much more collaborative than what we have today or had in those mythical golden days of yesteryear.

The conjunction arises as pressure builds up from the Climate Change Act (IPCC's just '12 years to go'), continuing poor public procurement despite some good practice, the near universal performance gap, the woeful management and upgrading of our existing building stock, widespread over-heating on new housing and the progressive deskilling of our workforce. But it has taken the 72 lives lost at Grenfell to concentrate our minds.

Fortunately, there are a number of initiatives running in parallel:

- Design for Performance (DfP) pilot programme coordinated by the Better Buildings Partnership to customise the Australian Nabers project for the UK
- The DQI is about to start a new and expanded programme
- The RIBA, CIOB and RICS have collaborated to develop a golden thread tool, 'Building in Quality', currently being trialled
- Ann Bentley's report 'Procuring for (whole life) value' is being developed with the Construction Leadership Council
- The NHBC continues to develop their insurance-backed inspection regimes to deal with over-heating, fire-stopping and other potential failures

Events such as Futurebuild are ideal platforms to explore how we can build better buildings and encourage the necessary change of mind and spirit.



Robin Nicholson,  
Partner at the  
Cullinan Studio





## THE CLIMATE CHANGE CHALLENGE: HOW CAN THE INDUSTRY HELP ACHIEVE A BUILT ENVIRONMENT FIT FOR THE FUTURE?

The urgent need to take action to address the carbon emissions associated with the buildings and construction sector is undeniable. We therefore welcome the inspiring leadership that we have seen represented by CEOs of businesses, mayors of cities, and governors of states and regions as a result of the launch of World Green Building Council's Net Zero Carbon Buildings Commitment in 2018.

It sends a strong market signal that we must change the way we design, build and operate our buildings to reduce energy wastage and reliance on fossil fuels that are causing irreversible damage to our planet.

These pledges, and the action plans being implemented, represent desperately needed change at scale.

We have seen from programmes such as the World Resources Institute's Building Efficiency Accelerator, which works to accelerate local government implementation of building efficiency policies and programmes, and green building certification schemes that establish benchmarks for best practices across various sustainability impacts, the types of benefits that governments and business can realise from replicating success; but we must now rocket forwards from the pilot testbed phase with the belief that we can and must achieve our goals.

We have learnt that the best approach to a sustainable, future-proofed built environment is to evaluate the best, most strategic pressure points to ensure efforts are effective and result in co-benefits to support wider communities and livelihoods.

Achieving these targets will be incredibly challenging, and require innovative approaches and systemic changes from industry that we have not even conceived yet. But it is essential in order to secure our livelihoods for generations to come. The buildings and construction sector must play our part to redress the balance. Performance standards in new construction must be higher, to reflect the challenge of deep renovations of existing stock.

In Singapore, for example, the Building and Construction Authority, a statutory board under the Ministry of National Development of the Singapore Government, has set long term aspirations for all low-rise buildings in Singapore to be positive-energy, all medium-rise buildings to be net zero energy, and all high-rise buildings to be super-low energy. This approach responds to their unique situation as an island-state with limited land and very dense populations, to advance towards net zero carbon buildings.

These types of innovative approaches embrace the multitude of solutions and responses needed to achieve our decarbonisation goals, in a way that is appropriate and applicable to the local context.

"Net zero" buildings can be found in every corner of the world, and in every building type: from mosques in Amman, Jordan, to affordable housing communities in Hawaii, USA, and high-density multi-use precincts in Sydney, Australia. Applying the philosophy of net zero reduces wastage, optimises performance and improves comfort.

As an industry, we must ask ourselves what role we each can play. These are exciting times, and we must embrace the possibilities and opportunities to collaborate across sectors to achieve collective change that is greater than the sum of our parts.

Green Building Councils across the world are developing roadmaps, tools and resources to raise awareness, educate industry and advocate for accelerated action towards net zero carbon buildings. We celebrate the leaders of today, and thank them for their dedication to the cause, but we also look forward to when this leadership has become the business as usual of tomorrow.



Cristina Gamboa,  
CEO World Green  
Building Council





## THE CHALLENGE TO ACHIEVE REAL CHANGE: REBEL LEADERSHIP

There seems to be a growing consensus that we are running out of time in our fight against planetary destruction - oceans choked with plastics, toxic cities and ever-increasing carbon dioxide levels in our atmosphere.

Add to this the increasing frustration against the lack of opportunity for social mobility, inequal access to education and healthcare and it is not surprising that people are starting to call for a different type of leadership.

Amongst all of this, there is an increasing awareness that new disruptive business and economic models are required to create a paradigm shift. But where are those leaders to be found; in government, in industry, in business or on the street?

Can positive forces for change thrive in the structure of large organisations where the business culture may dictate the way things are done?

Can rebellion occur against the backdrop of societal norms and expectations, or in the face of economic realities?

Do governments place barriers to rebellion, intentional or otherwise?

I have been called a rebel myself, and I took offence at what I perceived to be a slight. With hindsight I now realise what a compliment it is. The world needs more rebels.

Those in management positions, whether government or industry, need to learn to nurture not fear the rebel. And of course, we rebels need to become experts in our craft, to know where the boundaries lie so that we may play beyond them.

We need to hone our skills of negotiation and empathy to lead change, where fear and uncertainty is paralysing the many. One must be robust enough to persevere in the face of disappointment and to acknowledge our own weaknesses.

Whether personal change, business change, or indeed widespread governance and fiscal change there will always be fear. But the opportunity, and indeed the desperate need, for new entries to the market place, for defining new ways of working and for redefining wealth across the globe has got to be worth the risk.



Kirsten Henson,  
Director KLH Sustainability









## THE URBAN CHALLENGE: CITIES FOR THE FUTURE

Most of us either live in, work in, or visit cities regularly. They are engines of growth, and by 2050 more and more people will be living in cities - particularly in Asia. Since 1980 the equivalent to the combined populations of the USA, Britain, France, Germany and Italy have left the farms of China's countryside for an urban future.

Cities in the UK and right across the world are facing increasing challenges that need to be addressed: from how people move around, to where they are going to live, to whether they can breathe clean air.

Innovation and new technology will have a vital part to play in creating the liveable cities of the future. Because the demands on infrastructure and services are often out-stripping the ability to provide and pay for them, smart solutions are required. That will mean applying digital technology to use the infrastructure and facilities we already have more efficiently and to deliver better for citizens.

This digital technology is becoming ever more pervasive. For example, there are more mobile phones in the world than there are toilets. These technologies, and the data they provide, can help companies and city administrations understand how people move around and interact with cities, and how well services are functioning.

Big data can help city planners design things better, and they can help citizens use what's available more effectively. Many of us already use apps to help us navigate our cities and make better use of the public transport system.

Applying these new digital solutions to solve city problems is a big opportunity for business. The global markets for city infrastructure and services are many trillions of dollars. As well as doing good business, companies can also help to deliver for the greater good, making cities more liveable, equitable and sustainable.

Companies will play a part in developing products and services that enhance urban resilience and meet the needs of all citizens. City governments also need to play an active role in using, shaping and sharing these technologies. Local authorities face financial difficulties and are having to make big cuts, but they still spend a lot of money, and have many tools to shape their metropolitan areas. City administrations can use their procurement power to stimulate demand for the sustainable solutions; they can use their outreach to make their citizens smarter and enable wider participation; and they can use their convening power to bring different sectors together to create better places.

Rather than being disrupted and dislocated by the wave of digital innovation, city leaders should be harnessing the opportunity. By investing in digital capability, providing connectivity, and thinking of their city as a platform, they can leverage their physical assets, engage citizens as co-creators and be in better shape to face the urban challenges ahead.



Professor Peter Madden  
OBE, Cardiff University





## THE RETROFIT CHALLENGE FOR HOUSING

The October 2018 IPCC Report on the Impacts of Global Warming of 1.5°C warns that global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate. Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase with global warming of 1.5°C and increase further with 2°C.

The report identifies that pathways limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems. These imply deep emissions reductions in all sectors, a wide portfolio of mitigation options and a significant upscaling of investments in those options.

The UK has about 28 million homes and these contribute about 40% of UK emissions. What would a rapid and far-reaching transition look like in the residential sector? It would mean that between now and 2050 we would improve the energy efficiency of about 1 million homes per year. If progress follows an S-shaped curve, as it always has with energy improvements in our homes, the middle years would see perhaps 3 million homes upgraded every year.

Can we do this? Of course we can. When the UK moved from Town Gas to North Sea Gas in the 1960s and 1970s, we rebuilt the national gas distribution infrastructure and converted an average of 1 million homes per year for fourteen years. No computers were used, no-one 'liked' it on Facebook, and it did not trend on Twitter. The government of the day made a decision that was in the national interest and the Gas Board got on with it, at a cost in today's money of over £15 billion.

How do we move quickly now to retrofit solutions to tackle rising emissions from our homes? We cannot wait until we have perfect information. That day will never come.

The challenge is a 'wicked' one, which means that:

- It has no clear solution
- It is socially complex
- It does not sit conveniently within the responsibility of any one organisation
- It involves changing behaviours, by organisations as well as by people
- Different people have different versions of what the challenge is
- The challenge has many interdependencies and is multi-causal
- Addressing the challenge will lead to unforeseen consequences

To tackle it we need:

- To engage stakeholders and citizens effectively in understanding the problem and in identifying possible solutions
- To tolerate uncertainty and accept the need for a long-term focus
- To make the best use of the knowledge, experience, systems and organisations we have
- To recognise that the benefits of acting intelligently will be profound and widespread

To begin, we need to focus our attention on owner-occupiers and private landlords, who between them own more than 80% of all homes; and we need to understand residential energy efficiency at a systems level.

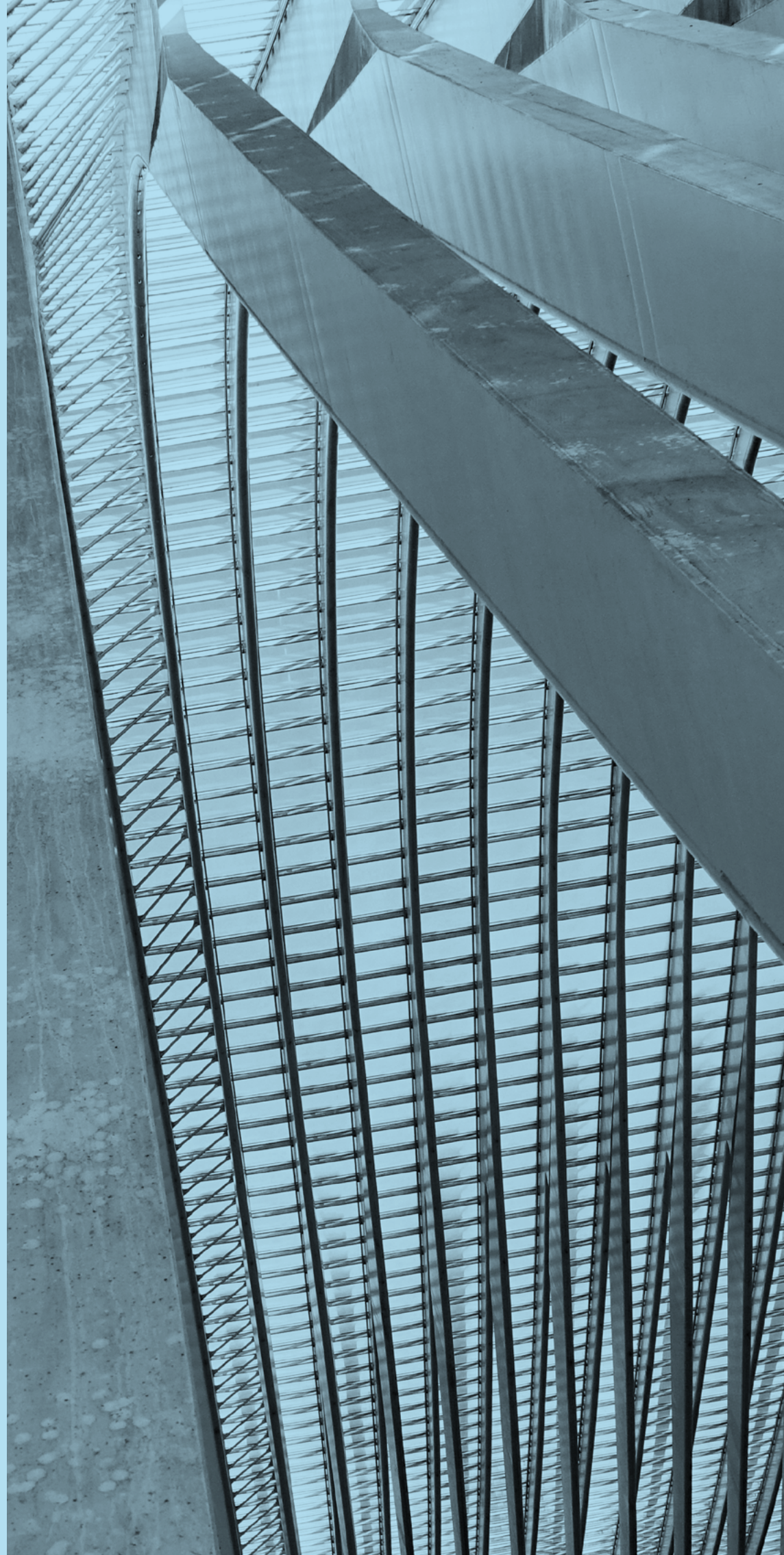
No homeowner will act until he or she has the capability, the opportunity and the motivation to act. We need to ask ourselves:

- What people and organisations are able to increase a homeowner's capability, opportunity or motivation to act to upgrade their property?
- How should these people and organisations behave so that homeowners choose to improve the energy efficiency of their homes and find it easy to do so well?

Helping to ensure a sustainable future for succeeding generations has never had a greater moral, economic, social and environmental imperative. Now is the time to act. As citizens, this is our responsibility.



Chris Jofeh,  
Global Retrofit Leader, Arup





## THE FUTURE PRACTICE CHALLENGE: CONNECTING EDUCATION, RESEARCH, PRACTICE & PROFESSIONALISM

There's no question that universities are going through a difficult time at the moment, with reductions in recruitment and long-term under investment in both research and teaching. This means that many are failing to deliver an education that is fit for purpose. This issue is also compounded by a general lack of knowledge among architects that I encounter about what goes on in universities beyond their own education.

My thoughts and insights have been greatly shaped by my experiences in helping Professor Lorraine Farrelly set up the new school of Architecture at the University of Reading, where we have an unprecedented level of engagement with colleagues in practice and the rest of the construction industry.

There are four things that I believe to be core to the separation of industry and academia over the last few years:

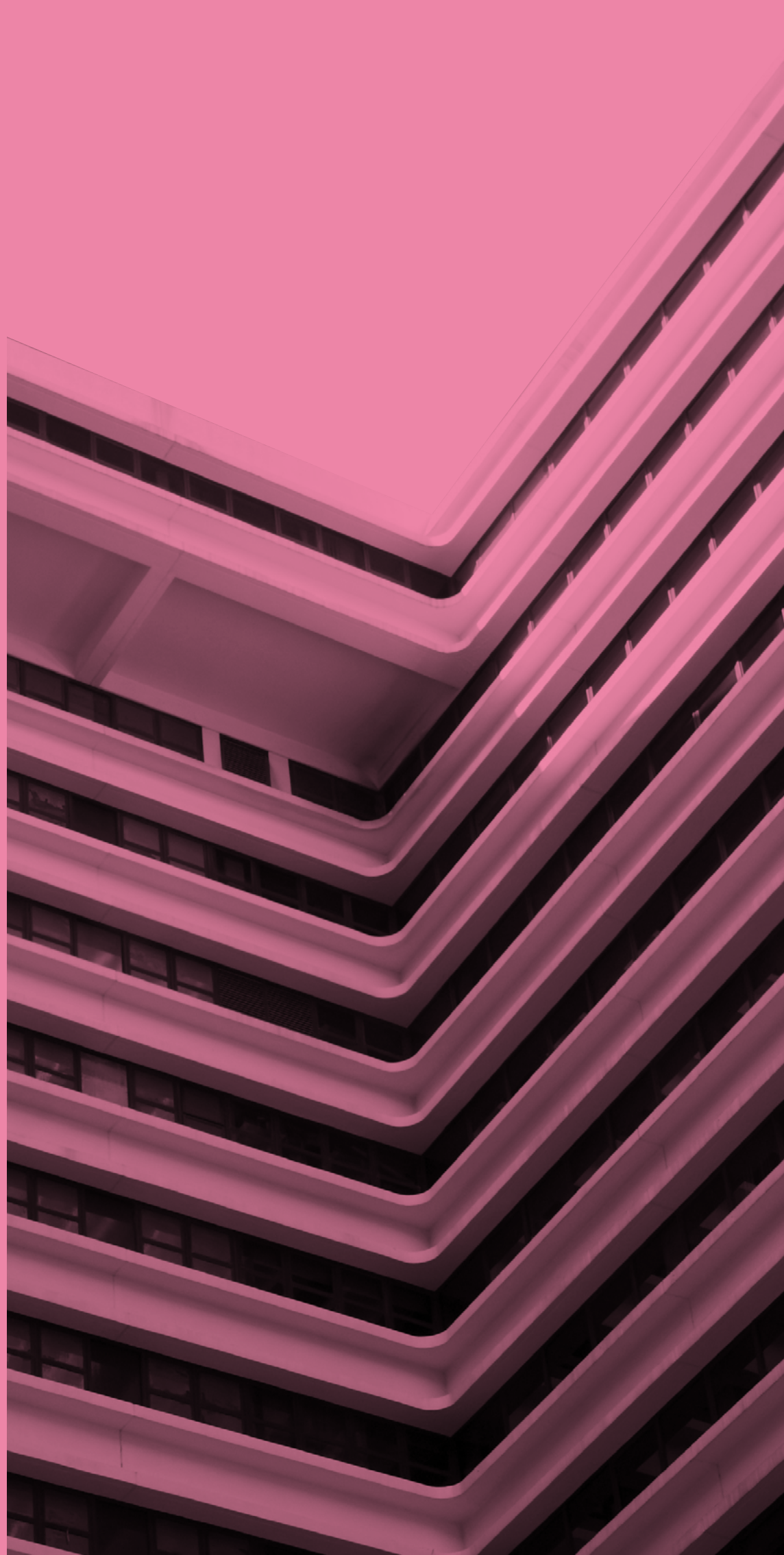
- The Research Excellence Framework (introduced 1986). Used as a tool to monitor research and allocate funding, the framework has forced practitioners who teach in universities to stop practicing and start producing 'research outputs' – and it is much easier to do a research paper on a subject far from the messy and 'unrigorous' reality of industry. It has also made it almost impossible to get a job in education without a PhD meaning that students are taught by staff with scant industry knowledge. Recent moves towards the impact agenda fail to be reflected in the reward and recognition structures of universities
- Publications for sharing knowledge. Practitioners rarely read the 'research outputs' in 'refereed journals' because they are difficult to access and are perceived to be a bit boring and sometimes irrelevant. Students are rarely asked to read refereed journals which compounds the problem going forward into industry. At the same time the industry press, subject to its own internal pressures, has little time for research in its attempt to capture readers
- Institutional Validation Criteria. The development of this is led by educators with little experience of current practice, it needs radical revision for a changing industry
- 'Privatisation' of UK universities. Universities have become businesses which are expected to generate income through student recruitment and/or research. At the same time there has been a massive expansion in bureaucracy, coupled with vanishing admin teams which means that staff are under extraordinary levels of pressure just to cope. This means that there is little or no time for the outward facing, strategic work necessary to make sure education keeps up with the times

Some of these things we can fix quite readily, others are subject to the will of politicians, but students are the victims. We have to develop a joined-up effort to develop, grow, disseminate and protect the knowledge of built environment professionals.

The University of Reading School of Architecture provides one model of how this might be done set out in *Why Architects Matter: Evidencing and Communicating the Value of Architects* (2018).



Flora Samuel, Professor of  
Architecture in the Built  
Environment at  
Reading University





## UN SUSTAINABLE DEVELOPMENT GOAL 13: THE COMMITMENT CHALLENGE

In January, the World Economic Forum's Global Risks Report ranked extreme weather events first, and the failure of climate change mitigation and adaptation second, on its table of global risks by likelihood.

Discussions at Davos were dominated by environmental risks this year, and given the delegates you would expect that to mean more investment towards Goal 13 of the UN Sustainable Development Goals - Take Urgent Action to Combat Climate Change and Its Impacts. But businesses are hungrier for opportunity than risk.

Last year, the Intergovernmental Panel on Climate Change said we have 12 years to limit global temperature rise to 1.5°C above pre-industrial levels, otherwise adapting to the impacts (hotter days, fiercer fires, storms and rising seas) is going to get exponentially more challenging and expensive.

The world needs to up its efforts to decarbonise. By 2017, the Climate Change Act had helped to reduce the UK's greenhouse gas emissions to 43% below 1990 levels (the UK economy grew by two thirds during the same period), but there's still a long way to go. Alongside that work, because of the amount of climate change already "locked-in" we need to understand and invest in resilience.

Even in England's relatively hospitable climate, events like the floods of 2013/14 and 2015/16, and 2018's record dry summer, are set to happen more often.

Boards should put aside capital expenditure to ensure business continuity in severe weather. If there's only one shop in town that people can get to in a blizzard, then you don't need a Harvard degree to know where everyone's gone to buy milk.

According to the Institution of Civil Engineers, over 45% of National Infrastructure and Construction to 2020/21 will be financed through the private sector. Globally, climate resilience measures are predominantly provided by the public sector, but cross-sector collaboration is crucial. As people's routines are disrupted by climate change, shareholders, workers, and customers will increasingly demand that brands help their lives run smoothly.

This isn't only about new technology, it's about planning through uncertainty and having a flexible approach. Don't prepare for the previous record storm, build back better for the next one.

Whether it's a global temperature rise of 1.5°C or 4°C, adaptation pathways enable us to respond to the latest science, economic drivers and environmental changes as our understanding improves. The Thames Estuary 2100 project – which looks beyond the life of the current Thames Barrier – is an example.

Finance can help. For instance, can you show a CEO how much certain property protections are worth to their business in hard numbers before a future storm? Insurance companies do afterwards, but afterwards is too late. Insurance-linked loan packages and resilience impact bonds could be ways of monetising resilience up front.

The global scale of climate change is intellectually daunting, but if we boil it down to physical things individual businesses can do, we can see there's much to gain. UN Sustainable Development Goal 13 presents a world of long-term opportunities for investors. Shareholders should demand they take advantage.



Emma Howard Boyd,  
Chair of the Environment  
Agency and UK  
Commissioner to the  
Global Commission on  
Adaptation





## CONCLUDING THOUGHTS

There are no easy answers to the sustainability challenges confronting the built environment today. But it is clear that stakeholders from across the built environment must all strive for change and work together if they are to create meaningful solutions.

Our contributors have explored a wide range of concerns, but all agree that the way the industry operates today is not sufficient to achieve the built environment we want to create for tomorrow. To meet the ambitious objectives set out by the likes of the UN Sustainable Development Goals, all corners of the sector need to do more, and do it differently.

According to the opinions of our experts, that means embracing the rebellious leaders of tomorrow, welcoming the opportunities presented by the digital revolution and being brave enough to develop and implement radical new business models. But perhaps most importantly, working in collaboration.

From the institutions that educate the construction professionals of tomorrow, to the experts who design the buildings we construct today, right through to the shareholders who ultimately finance the sector – everyone has a role to play.

And most agree that now is the time for change, so the next 12 months will be pivotal in the industry's sustainability journey.





CREATED BY TANGERINE COMMS,  
THE SPECIALIST CREATIVE COMMS  
AGENCY FOR THE BUILT ENVIRONMENT  
[TANGERINECOMMS.COM](http://TANGERINECOMMS.COM)

futurebuild + Tangerine

