

From Retrofit to Regeneration

A blueprint for post-Covid recovery



Responsible Retrofit Series

STBA

SUSTAINABLE TRADITIONAL
BUILDINGS ALLIANCE

From Retrofit to Regeneration

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Image: Isabel Carmona

Introduction

This paper explains why the UK should replace its policies and programmes to 'Retrofit' the built environment (merely to improve energy efficiency) with a strategy which uses a much wider set of objectives. Taken together, this might be termed a 'Regeneration' approach.

Such an approach would include **health, heritage, community cohesion, local employment, cleaning and re-greening the environment, transport, and flood alleviation.**

A well thought-out programme of regeneration would enable the government to present a post-Covid recovery which delivers all these objectives, while being low on cost. At the same time, it would deliver sustained reductions in greenhouse gas emissions while minimising the overall environmental impact of making these changes.

There is nothing new about the concept of Regeneration. Many schemes have been implemented in the UK over the last 50 years – with varying degrees of success. What is new is the commitment to revamp large swathes of existing building stock and to spend a very large amount of money doing so, all driven by the recent climate change agenda. Given this commitment, it's important that we get the process right.



Image: Pauline Leroy

1 Context

On the one hand, we currently have ambitious commitments to reductions in greenhouse gas emissions, and a raft of policies and programmes which seek to drive down energy use of the building stock. As a result of Covid the government has published a ten point plan for a green recovery and is considering retrofit of the building stock as a primary way to provide employment and to help meet its commitments on climate change.

On the other hand, during the pandemic there has been a genuine appetite among many people to see a fundamental change in how we live, how we share resources and space. There has also been a sudden and huge interest in welfare economics (as opposed to GDP). We have had an opportunity to reassess some fundamental questions about what we seek from our society, and thus from our buildings and wider land use, and to consider a wide variety of social and environmental issues, quite apart from energy consumption.



Image: Krisztina Papp

2 What is Sustainability?

Genuine sustainability is about the kind of tomorrow we want to leave to our children, as in the Brundtland definition from 1987:

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

This definition is people-centred and intergenerational. It effectively covers all aspects of the environment – there’s a lot more to sustainability than energy and climate change.



Image: Andy Lord



Image: Bruno Martins

3 What is Regeneration?

Regeneration is an approach to future planning based on a wide range of social, environmental and economic objectives – i.e. not just reductions in energy use. These include¹:

- **Health**
- **Provision of local employment (and training)**
- **Community cohesion and facilities**
- **Protection and enhancement of cultural heritage**
- **Cleaning and greening the environment**
- **Water efficiency and sustainable drainage**
- **Sustainable transport**

All these aims need to be included if we are considering making wholesale changes to our built environment.

All these aims need to be included if we are considering making wholesale changes to our built environment. Regeneration has to be planned and delivered (principally) at a community level as many of these benefits can only be realised through co-operation and joined-up thinking, which should in turn inform the funding mechanisms.

The primary beneficiaries should be the worst off in society, so with proper planning we can target limited resources at the most deprived communities. At the same time, assets (including natural capital) in wealthier communities should be protected and ultimately enhanced.

We're talking about far-reaching change here. There will be winners and losers and we have to manage that change. Some jobs will go, and this will cause disruption, so the losers have to be protected. However, this spare labour represents an additional and ultimately welcome resource – the majority of the cost of doing anything is labour, and right now it is becoming plentiful.



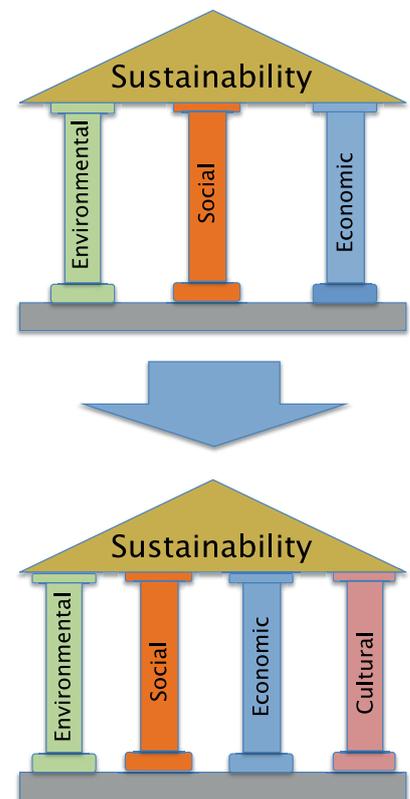
Image: Isabel Carmona

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To look at the additional aims in a little more detail:

- **Health** must surely be at the top of everyone's list. We need buildings that promote physical and mental health. All buildings should have adequate fresh air and sufficient warmth; toxic materials should be removed and certainly not introduced. As retrofit reduces natural air leakage, ventilation must always be assessed and improved wherever needed. Repairs should be carried out prior to retrofit to avoid locking in moisture, and all new materials carefully selected. Buildings also need to be dry and have natural light – damp, dark and cold dwellings can and do contribute to poor mental health as well as causing respiratory and other illnesses.
- **Communities** are what provide the context for all buildings. In an economic sense, there is a huge opportunity to provide locally-based employment through regeneration, building knowledge and expertise which can be handed down within communities. The best area-based retrofit schemes have included local employment in their aims from the start, but have also encouraged neighbours to talk to each other more and have been successful in re-establishing community spirit in some places. This kind of regeneration addresses not only fuel poverty but also the poverty of expectation which blights so many communities.
- **Heritage** is a community-owned asset – we all live among buildings and the older building stock provides a sense of place which defines the visual backbone of our villages, towns and cities. Communities should be able to decide what buildings they cherish and enhance, and those which need to be recycled. Cultural Heritage is part of sustainability – culture was added as the fourth pillar of sustainability (along with economic, social and environmental) by United Cities and Local Governments in 2010², and subsequently adopted by UNESCO. Genuine sustainability thus naturally includes heritage; this removes the false opposition between the two which has caused so much difficulty in decision-making.
- **Cleaning and greening the environment** is an area-based improvement that can be carried out at the same time as making changes to the building stock. We have a legacy of pollution from the industrial revolution through to more recent times (such as plastic) which we need to address. In place of redundant buildings and infrastructure can come parks, tree planting, leisure facilities, and brownfield land cleaned up ready for further development. Cleaning up pollution and replanting also provides employment which can be accessed without qualifications and with only minimal training and can provide a route back to work for the long term unemployed as well as encouraging communities to take ownership of their immediate environment.

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- **Water efficiency** is relatively simple to deliver at the same time as energy efficiency, though the case for it should be carefully considered. **Sustainable drainage** is best delivered at community level, using attenuation ponds for surface water run-off and permeable surfacing wherever possible to reduce flood risk. However, the planning of regeneration is the ideal opportunity to provide the infrastructure required for sustainable drainage systems.
 - **Transport** is the final piece in the regeneration jigsaw. We need to begin our local transport plans with a commitment to reduce commuting – by repopulating our city centres (through conversion of redundant buildings) and then embrace walking, cycling and public transport as the preferred or only option in most cases. This is already being done (see **Section 7** on Localism). Public transport can then be fully integrated with local hubs that connect to the national transport infrastructure, which must remain the responsibility of central government to maintain and improve sustainability.

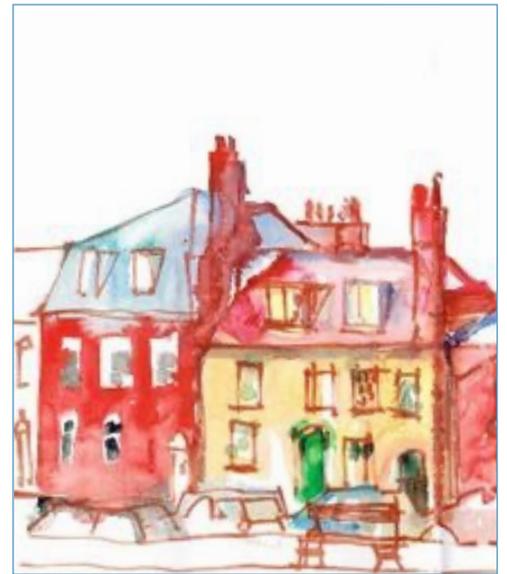


Image: Isabel Carmona



Image: Cypren Edmunds

4 What is Retrofit?

Retrofit is commonly defined as making changes to buildings in order to reduce energy use. It has the twin drivers of reducing carbon emissions and reducing fuel poverty, though these can sometimes result in conflicting recommendations for change.

This narrow approach to retrofit has led to numerous unintended consequences.

- **Badly executed retrofit has led to damp and mould, compromised indoor air quality and affected human health.**
- **Damage has been caused to buildings and to heritage.**
- **The environmental impact of the retrofit work sometimes exceeds the reductions achieved in operation – causing the opposite result to what was intended, (where embodied carbon of measures exceeds savings).**

At the worst end of this scale are the retrofit schemes at Preston and Grenfell³.

At the same time, this narrow approach has missed opportunities to achieve a much wider set of economic and social goals. Too often the workforce has come from far away – purely on the basis of a successful competitive tender. The knowledge of the buildings and the retrofit techniques used is then lost to the community, as is the employment and its effects on the local economic multiplier. A workforce drafted in also does not take long term responsibility for the work, which is more likely to lead to poor quality.

If we are making changes to buildings, then at the same time we should be asking what we can do to retrofit water efficiency devices, or deliver sustainable drainage at an individual building level and at a community level. We should also empower local communities to decide on what kind of future they would like – for example, whether they want to see more local facilities, or more green spaces, or protect existing assets from inappropriate development. This is explored further in **Section 7**.

Attempts have been made to introduce a wider set of aims into the energy retrofit agenda. Arbed²⁴ was strong on community co-benefits, and PAS 2035⁵ puts health squarely at the centre of retrofit, whilst recognising the importance of cultural heritage as represented by the building stock and taking welcome steps to avoid unintended consequences.

How retrofit is carried out, and the choice of materials used, can have much greater (social, economic and environmental) impacts in the short term than its long term effects in terms of energy use reductions.



Image: Cyprien Edmunds

However, ultimately it is impossible to shoehorn community benefits into a standard that looks at buildings on an individual basis, and wider concerns into an agenda based on energy. How retrofit is carried out, and the choice of materials used, can have much greater social, economic and environmental impacts in the short/medium term than its long term effects in terms of energy use reductions. The importance of embodied energy and whole life cycle costing point to the need to consider materials – their production, reuse and recycling – much more carefully. A growing understanding of the circular economy highlights that a regeneration approach to retrofit would deliver many positive outcomes in terms of local employment and social cohesion.

“This is not to say that there have not been good schemes which have worked technically and improved the areas where they have been carried out. But even here the question needs to be raised as to whether they have improved the long term sustainability of the occupants and communities, or whether this work has been an unintegrated measure which has not addressed fundamental problems of how we live, how we interact with each other and nature, and how we build a flourishing culture. The programmes have all been formulated within a neo-liberal and reductionist understanding of society which excludes such issues.”
Neil May MBE, 2017



Image: Isabel Cairnona

5 How did this situation arise?

It seems obvious that you don't dig up the road twice to put in two separate pipes if they can share a trench. However, in terms of retrofit, we get this wrong all the time. For example, we might first change a boiler, then later do the windows and then come back to add external wall insulation. The windows might then need to be moved outwards and the boiler will be oversized for the job, which all create extra work, expense, waste and carbon emissions. Furthermore, while we're making changes to buildings to improve energy efficiency, let's see what else we can achieve. It is thus a valid question to ask why such a narrow approach to retrofit has been dominant for so long.

Policy regarding individual buildings was originally delivered via the Building Regulations, but in recent years the ministries which deal with energy have been developing policy which imposes change in this one area. We had a Department for Energy and Climate Change (DECC), which meant that the social and economic costs and benefits of the energy supply and demand mix were subordinated to the narrow approach of measuring carbon emissions from energy in use. Now we have a department (BEIS) where energy is placed hand in hand with industry, so it is hardly surprising that industrial interests have come to dominate energy policy.

Industry makes money from change, from the manufacture and installation of goods and services. What industry does not want to hear is that the most sustainable thing to do, the only way we can deliver a sustainable tomorrow, is to slow down, do less, consume less, travel less. Even architects, when looking at any particular building, will have a tendency to specify the maximum amount of change. There will still be plenty of profit to be made from a revised approach to the future, but it will involve significant change and that will need to be managed.

Government will naturally be concerned about the possibility of economic contraction as it needs to balance the books. From 'Clean Growth' to 'Green Recovery' through to 'how to make money and be green', there is a fundamental assumption that the economy, as measured by GDP, must continue to grow – largely in order to service existing debt. Fundamental changes in our economy are needed if we are to achieve genuine sustainability; just as we need to reset our aims and priorities as a society to move away from consumerism and towards all the things that we genuinely value more, we shall have to deal with this, and quickly. This is a great opportunity for the UK Government to shine in advance of the Glasgow climate change conference, by changing the agenda and to lead the developed world in this area.

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In the meantime, the question becomes one of organisation. The national departmental structure breeds a silo mentality (back to the 'single trench' problem). Perhaps we need a Department for Sustainability – which would take responsibility for planning a sustainable future. (You could argue that all current departments do future planning – loads of it in fact – but it isn't joined up!) Such a Department would be ideally placed to take forward a comprehensive and connected agenda including employment, industry, health and social welfare alongside a genuine long-term concern for the environment and would therefore encompass the current 'Department for Levelling up, Communities and Housing'. This would have the advantage that responsibility for the built environment would no longer be split (between this and BEIS) and address the misalignment of aims and metrics – see STBA's paper on EPCs and the Whole House Approach. Something similar already exists in Wales – [see Section 8](#).

Perhaps we need a Department for Sustainability – which would take responsibility for planning a sustainable future.



Image: Magda V

6 Lessons from Covid-19

Covid-19 has caused tragedy for some, loss of livelihood for others, and serious practical and emotional difficulties for many, but it has also given us a chance to pause, to reflect, and to consider what we truly value about our lives. It would be naïve to suggest that consumerism is a thing of the past, but many people have realised that we don't need (or want) to consume at such a rate and that our families and friends are the most important things to us all.

We have also learned that many jobs can be carried out successfully while travelling much less – or not at all. This is not to say that people in clerical jobs don't need to meet colleagues from time to time, but perhaps not every day. While reducing the burden on the transport system, there will also be a reduced demand for some types of commercial property. The pandemic has also accelerated the move to online shopping so the need for physical retail outlets will shrink. It may even be the case that some jobs in the economy may not be needed at all in a post-pandemic world, which may free up both property and labour. This twin resource could be turned to great advantage in a Programme of Regeneration, if handled correctly.

Just as importantly, cultural heritage and the environment matter – even more so than ever. Many people have reported an increased appreciation of the natural environment as a result of the various lockdowns we've experienced. The need to get out and walk has brought people back into contact with their immediate surroundings and this extends to other areas of our heritage – including the built environment. We value beauty, we value art, we need these things and a sense of place and community in our lives just as much as a low carbon future.

At the same time, after Covid:

- **there will be demands from all sectors of the economy for investment,**
- **debt will have increased substantially and increased taxation will be needed to service and reduce this debt.**

For these reasons, we need to be very careful where we spend money, and make sure that change is sustainable, low impact and cost-effective, and that it achieves what we really want. Rather than rushing into spending to support jobs we may no longer need, we need the courage to pause existing programmes of investment, step back and take a fresh look at the future.



Image: Megan Andrews

7 Localism and Planning

Such radical change needs to be centrally led and facilitated, but the detail can only be finalised and delivered locally. This means that we need more planning and not less. Planning is what enables us to set appropriate priorities and deliver against them. If the planning system appears to fail we need better planning, not to get rid of it and hand the future over to commercial interests and pressure groups.

At present developers have engineered a situation where councils are penalised if they do not make land available for new development. Principally due to new housing targets, people have lost control over how their local area develops, and this has to stop.

The most sustainable place to build is generally on brownfield sites, and conversion of existing buildings has a lower environmental impact than new build. We can not only meet our housing needs by converting existing buildings, we can locate people in cities, where the facilities already exist, and thus regenerate our city centres. This in turn will reduce the demand for both public and private transport.

The '15 minute city' describes an approach where almost all essential services can be reached within a 15 minute walk or cycle ride⁶. Private transport is relegated to deliveries and the most essential services. Green spaces will be increased, farms around cities will be used to support them as much as possible, reverting to an earlier model prior to globalisation. The concept originated in San Francisco and Amsterdam is actively looking at this as a way forward. It won't work everywhere of course, but it does point to mixed development as the way forward.

Tim Smit KBE (Eden Project Executive Vice-Chair and Co-Founder) said on the BBC's, 'Cornwall with Simon Reeve' in 2020:

"One of the things Covid has done is made people think about localism. I have a vision that the major towns in our country will be surrounded by farms that completely change their whole approach to agriculture...the future of Cornwall requires a boldness of vision...we could make it a brilliant place to live for everybody...the biggest problem is belief that you can...we've got enough derelict land here to build the most extraordinary housing stock for our own people and for others who might want to come...the whole thing needs to be joined up...you could create real wealth within a generation, but for everybody here."⁷

The presenter Simon Reeve added:

"perhaps we are ready for some bold big ideas...opinion polls show just a tiny percentage of people want life to return to exactly how it was in 2019. We seem ready for change."



Images: RUSS, Lewisham

8 The impetus for change

The ideas in this paper are merely a contribution to a process which is already happening. We know we cannot go on consuming at this rate – the planet is finite and some resources are becoming scarce.⁸ We need a new approach and a new system of economic value to match, and welfare economics must be at the heart of this. Here are some current initiatives that give us hope that fundamental change is possible.

Reith Lectures 2020

Those who heard Mark Carney deliver the Reith lectures on the BBC in 2020 may have been astonished to hear a former central banker holding forth about welfare economics.

Welsh Government Policy

Wales is ahead of the game here, having passed the Wellbeing of Future Generations Act in 2016, obliging government to take a rounded view of all policies. The Act sets out seven wellbeing goals and, just as importantly, five ways of working.

Transforming Towns

Wales also has the 'Transforming Towns' initiative already in progress. WEALL (an international group advocating a switch to welfare economics) published their manifesto in January 2020.

Schumacher Institute

The Schumacher Institute recently hosted Katherine Trebeck – 'Prospects for a Wellbeing Economy'

Permaculture Magazine

Permaculture published a whole issue in 2019 devoted to challenging the concept of economic growth.

World Future Council

Looking back a little further, the World Future Council commissioned *Regenerative Cities* – Herbert Girardet, (2010)

Doughnut Economics

Kate Raworth's *Doughnut Economics* (2012) lays the groundwork for the 15 minute city (see Section 7).

The All Party Parliamentary Group on the Green New Deal

The APPG on the Green New Deal published *Time to Reset* in 2020 and this is entirely consistent with the ideas outlined here, as it covers not only community, housing, transport and working life but also food, health and the culture of consumerism.

Levelling up?

The incoming government spoke of 'levelling up' (2019) but to date there has been no detail on what this means, other than an expectation of more growth, more consumption, i.e. the opposite of what is needed. We can still level up, but we can do it more effectively by celebrating what each area has to offer, especially the natural capital so often ignored but valued once again during the pandemic.

Climate Coalition

These are the same points as the Council for the Protection of Rural England made via the Climate Coalition in June 2020, putting nature, health and people first in a green recovery and starting with the poorest communities.



Image: Isabel Carmona

9 Conclusions

In replacing retrofit with a regeneration agenda, as well as reducing energy use in a truly sustainable way, we will also improve public health, provide useful employment, reduce the social care bill and deliver the community cohesion which has again become so valued during Covid. Change is upon us; this is a great chance to get it right.

In order to move this forward, action is required at several levels:

Central government should:

- provide leadership in resetting societal priorities away from consumerism and economic aims and towards wellbeing;
- establish a Department for Sustainability (with responsibility for Energy and Housing and Communities transferred here);
- set out the framework by which local regeneration plans can be developed by local authorities;
- facilitate the residual demands of each regional area in terms of waste management, transport, energy etc.
- redress the VAT imbalance between new build and refurbishment.

Local government then has to:

- identify areas in most need of regeneration;
- agree an agenda to be considered in future planning;
- re-assess existing development planning to minimise or eliminate green field development, convert redundant commercial sites to residential use, community use, repair cafés, re-greening, leisure, energy networks and flood retention schemes;
- establish which bodies will be responsible for developing and delivering local plans and support them in this process.

Business must be required to:

- re-examine its aims and objectives to reflect the communities it serves;
- pay for the social cost of its operations (e.g. litter, obesity, pollution);
- respond to the regeneration agenda and shift operations accordingly.

We should start with the poorest and most deprived areas of Britain.

Appendix 1 STBA

The aim of the Sustainable Traditional Buildings Alliance (STBA) is to deliver a sustainable traditional built environment in the UK. Our approach is holistic, beginning with the health and wellbeing of the building occupants and encompassing a broad range of sustainability indicators.

The STBA is a UK-wide collaboration of key organisations drawn from three sectors:

- sustainability;
- heritage;
- industry.

Our three co-chairs represent each of these sectors, to ensure that the STBA retains a balance in all its policy responses and publications. The STBA is independent, inclusive, and not aligned to any pressure group or commercial entity.

Since our foundation in 2012 we have published a suite of reports, tools and guidance to help identify and manage risks in retrofit:

- Responsible Retrofit Report (extensive report for UK Govt)
- Planning Responsible retrofit (24 page guide for project managers)
- What is Whole House Retrofit? (short discussion paper)
- [Guidance Wheel](#) (comprehensive online risk tool backed by UK Govt)
- Gap Analysis on Energy Efficiency in Traditional Buildings (research paper commissioned by Historic England)
- EPCs and the Whole House Approach (policy paper backed by National Trust and Historic England)

All our guidance and tools are freely available and accessible via the [STBA website](#).

We have contributed extensively to the development of policy and standards in this area. STBA pioneered the Whole-House approach to retrofit, which was embraced in the Each Home Counts report (2016) which in turn led to the development of new public standards. STBA served on the Steering Groups at BSI for PAS 2035 (2019) – the new standard for domestic retrofit, and the equivalent standard for non-domestic buildings PAS 2038 (2021), both of which recognise the importance of protecting heritage in retrofit.

Through our practical work testing out the whole house approach via a project to retrofit social housing in Wales, we have also developed a comprehensive survey tool for use in retrofit projects, which is now reflected in British Standards. Our early work on moisture risks also led to the formation of the [UK Centre for Moisture in Buildings](#). We continue to promote the use of natural and sustainable materials in retrofit and to highlight the importance of embodied energy/carbon as compared to energy/carbon in use.

Appendix 2 Background Reading

None of this is new. Among other works, the 1970s gave us:

Small is Beautiful – A study of Economics as if People Mattered
Ernest Schumacher

The Limits to Growth
The Club of Rome

The Joyless Economy
Tibor Scitovsky

(An inquiry into human satisfaction and consumer dissatisfaction)

Economics, Peace and Laughter
JK Galbraith

To Have or to Be
Erich Fromm

(His famous attack on materialism)

However, all that was before Thatcher/Reagan and the belief that the only values which governments can pursue are measurable ones. Money is of course easier to measure than health or wellbeing, or natural capital. For that reason, profit maximisation (and tax revenue) has come to dominate the political agenda. Ironically, this wasn't quite how the Victorians approached capitalism, and it is a far cry from the economics of Adam Smith, or in later years Amartya Sen.

Those thinkers from the 1970s were viewed as idealists, but they simply had a much clearer view of the future than the industrialists and politicians who pushed them to one side. Their time has finally arrived – we need to ditch materialism and protect and enhance what makes us truly fulfilled as people. We cannot solve a problem like climate change⁹ by tinkering with buildings, we need a much more fundamental shift in our priorities and how we live our lives.

About the author

Nigel Griffiths is the former Director of the Sustainable Traditional Buildings Alliance, author of the *Haynes Eco House Manual*, Sustainability Expert to the Build-it group, and has worked for many years as a consultant to UK government, Devolved Administrations, Local Authorities, private clients and International Organisations.

References

- 1 This is consistent with the concept of 'Advanced Whole House Retrofit' as set out in STBA's 2015 paper *What is Whole House Retrofit?*.
- 2 United Cities and Local Governments, Culture: Fourth Pillar of Sustainable Development, 2010
- 3 <https://passivehouseplus.ie/news/health/disastrous-preston-retrofit-scheme-remains-unresolved>
- 4 Arbed 2 was a major domestic energy efficiency scheme sponsored by Welsh Government and ERDF which ran from 2012 to 2016. The scheme report can be found [here](#).
- 5 PAS2305 is the publicly available standard for domestic retrofit released by the BSI in 2019. PAS2038 for non-domestic buildings is expected in 2021.
- 6 <https://www.15minutecity.com/about>
- 7 Cornwall (BBC1) Simon Reeve Series 1 Episode 2. Aired 15/12/2020.
- 8 Tim Jackson's book *Prosperity without Growth*, for example, shows how the idea of continuing economic growth in unrestricted markets cannot possibly address the carbon reductions that are required for the survival of the planet.
- 9 Fighting climate change... "as though it were an alien invasion, rather than a result of our activities" (Neil May MBE, 2017).

The board of the STBA supports the Regeneration approach to Retrofit. More information about the STBA, its Patrons and Supporting Organisations and Affiliates can be found on our website: www.stbauk.org

Contact us: info@stbauk.org



Responsible Retrofit Series

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