

## ZCSP Report – Buildings

**WORK IN PROGRESS - This document may be incomplete and not peer reviewed.  
Comments and corrections are welcome.**

### Why We Build What We Build, and How We Change it..

James Smith, December 2020

The introductory and other documents within the Buildings section of the ZCSP report go into the detail and digests of the issue at hand with regard to our buildings and their energy use – this document aims to identify the cultural and perhaps eccentric tastes and decisions that inform the production and upkeep of our built environment, what needs to change, and how we might change it.

It is worth repeating however, that our buildings are responsible for A LOT of climate changing emissions (CO<sub>2</sub>e), aka Greenhouse Gases - through heating and operating them, but also through building them in the first place (embodied energy).

We MUST build our buildings better, and we even more MUST refurbish our existing buildings to bring them up to better efficiency standards – an activity that will also alleviate fuel poverty, improve occupant health, and create great economic opportunity.

The really daft thing is, as an industry we've known about the issues and broadly how to address them for at least 50 years – half a century! Technological advances have undoubtedly been made in energy and materials production, modern high-efficiency windows are some way from those available in the 1970s, but the basics of keeping houses warm have remained unchanged for a very very long time – the ancient Greeks had cavity walls, the Romans insulated their pipework with cork, and the Mongolians have been wrapping their yurts with felt in order to survive winters on the central Eurasian steppe for several thousand years.

There is undoubtedly a question of how to fund all this change (covered elsewhere [\[link\]](#)) however many decisions are made every day because 'that's what we've always done', or because 'that's what people want' – there is perhaps a built-in inertia in the construction industry for real substantial and creative change, due in part to economics, in part to local authorities planning departments and the planning system generally, and in part to basic capitalism, consumer awareness, and perceived demand.

It must also be stated that since the demise of the last Labour government, policies to support low-carbon buildings have been weakened or withdrawn, including ZeroCarbon Homes and the Code for Sustainable Homes, leading to many new homes being built only to minimum energy efficiency standards. We were doing much better than we are now. The construction industry was pointing in the right direction and gaining real ground – the required changes are absolutely credible and imminently possible.

## CURRENT SITUATION

### Large-scale

“There is now broad agreement that we need more homes, and large scale developments are a key part of delivering the housing the UK needs. However, simply increasing the supply of homes is not enough. We need to deliver sustainable, vibrant communities in the right places that people want to live in and can afford.”<sup>1</sup>

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1 <https://www.rtpi.org.uk/media/1956/deliveringlargescalehousingpracticeadvice2019.pdf>

Generally speaking it must be borne in mind that there is a very conservative attitude to design across all sectors of the construction industry which creates the general background: if the model has sold well in the past, why change it? This results in developers, and both volume and small-scale builders being loathe to introduce new designs, even if they respond to an area's vernacular or a specific context – in this instance climate change.

The UK Government sets out its planning policies and how they might be applied in The National Planning Policy Framework (NPPF), which Local Authorities (LAs) are then responsible for distilling into their Local Plans. The NPPF recognises the importance of “planning for larger scale development” provided that it is well located and designed, that there are “clear expectations for the quality of the development”.<sup>2</sup>

Large scale housing developments are about delivering large numbers of required housing, but the NPPF also recognises that they must be sustainable, and sites must be identified in the right locations, reducing car usage and increasing walking and cycling, and ensuring that they are supported by the necessary infrastructure and facilities.

It is the question of financial viability however that will often challenge the desired outcomes particularly in a largely rural county like Shropshire – a developer might easily argue that unusual looking ‘eco homes’ will push up costs and reduce demand, thus increasing risk and reducing reasonable returns on the investment.

Faced with these arguments there is little recourse for LAs who invariably back down, and the standard small detached box with a pitched roof, brick-slip facade, and pretend chimney proliferates.

Basically, for the vast majority of new build houses, the system works something like this:

1. Central Government tells Local Government how many houses it must produce.
2. Local Government comes up with and commits to a long-term master plan of roughly where these houses are to go (The Local Plan – or iterations thereof)
3. LG then works with landowners, developers, and financiers to try and meet the targets it has committed to in the timescale it has committed to.
4. The Landowners will hold out for the very best price.
5. The financiers are bound to push for high returns on their investment.
6. The Developers wish to make some profit themselves, and so quality/standards and time/money investment into the design and construction of each building suffers, whilst prices rise.
7. The people physically building the houses are de-incentivised and driven only by time – there is little point in them investing emotionally into the job.
8. House buyers are given very little real choice apart from badly conceived and built developments – and are told ‘this is what people want!’.

The Local Authority has very little power in this relationship, and there is little flexibility in the system. The planners are somewhat hamstrung and whilst they ensure standards that carry potentially severe penalties (eg structural integrity), there is no comeback on poorer energy efficiency standards - and on top of that, the houses may be built more than 5 years after they were originally planned, to 5-year-old standards.

### **Small-scale**

Smaller scale developments, including anything from a collection of a few houses built by a local builder/developer right down to extensions and loft conversions, and including self-build and DIY, make up

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2 <https://www.gov.uk/guidance/national-planning-policy-framework/14-meeting-the-challenge-of-climate-change-flooding-and-coastal-change>

over 50% of the UK's yearly construction output. This figure becomes even more important when one considers the opportunity that it represents to improve poorly insulated existing dwellings – it has long been advocated that the best time to carry out extensive retrofit and refurbishment is when other disruptive work is taking place.

The issues with small-scale development are less about national and local policy (apart from building standards), and more about awareness, knowledge, desire, skill, and apathy. There are also real or perceived financial and viability problems with building to higher energy standards, which builders are unlikely to pass onto their clients, or clients are unlikely to appreciate the full benefits of.

There is also the very real issue of builder's supply yards, DIY store chains and smaller hardware shops not stocking or promoting the materials and technologies that energy efficient buildings require – in a very real sense, for many builders the supply yards and staff represent the equivalent of their college, CPD programme, and mentors. Those who do wish to build well are forced to source items online from specialist suppliers, invariably increasing both material and delivery costs.

### **Retrofit & Refurbishment**

The retrofit or refurbishment of properties to better efficiency standards is in many ways the golden chalice, as it has the potential to save a huge amount of GHGs whilst positively affecting millions of lives. However, it has the same hurdles as small-scale building, with a few more besides.

Some of the inherent financial costs can be immediately offset against energy bill savings and thermal comfort, but any deep-retrofit adds complications of upheaval and disruption. **And unlike new build, VAT is chargeable on materials for refurbishment, making vital projects to save energy cost 20% more than they should.**

Even in those situations where deep-retrofit is possible and preferable, such as the conversion of offices to dwellings, the projects now fall under permitted development and therefore do not need to meet even the basic energy efficiency standards set out in Part L and F of the Building Regulations for new dwellings.

The other major hurdle that particularly affects retrofit is sentimentality. As has been stressed it is vitally important that we bring the existing housing stock up to very good energy efficiency standards, and for a lot of housing, particularly small Victorian terraces and the like, this means externally insulating whole streets. Whole streets with brick facades will need to be rendered, and this concept is a massive change that both the public and the planners need to be emotionally prepared for...

Indeed, it is the experience of anyone who is involved with retrofitting buildings, that even well-considered planning applications for those that do not sit within conservation areas or carry a listed status, will come up against gratuitous obstacles laid by planning and conservation officers when it comes to the addition of energy efficiency measures.

### SHARED 2030 VISION

Cherry Orchard in Shrewsbury is a conservation area that incorporates many styles of brick-built houses built around the turn of the 20<sup>th</sup> century. The houses might generally be described as Victorian or Edwardian, but those descriptions cover a huge range in the style of the houses, whilst still fitting a general aesthetic.

It must be assumed that when in 1887 Samuel Butler junior decided to develop the area of Cherry Orchard he did so in consultation with other Shrewsbury landowners and whatever form the local Council took at the time. He probably plotted out the area, and then auctioned off the plots to local builders – nothing else

would explain why there's a row of 4 houses there that look like the two houses over there, or that house on Bishop Street looks the same as the two semis on Canon street, or there's a row of 8 terraces there whilst others are detached and completely unique.

Whatever the exact form of the development, the result is a fascinating and unique collection of well-built and very desirable houses that undoubtedly provided a living for a great many local builders who driven by direct competition took more pride in their work than they might have done otherwise.

The other fascinating thing is that the aesthetic is broadly similar, not only due to the pattern books that a lot of the builders would've used, but also because the supply yards they used were stocking the materials of the time, which are essentially the same but also different – ridge tiles, finials, chimney pots, lintels, and other purchased items are slightly and beautifully different across the area.

It would be beneficial for all stake-holders if we were to approach large-scale developments in this way again – building standards and creativity would increase, as would the range of styles and types of housing, and the result would be truly fascinating.

Meanwhile a similarly mutually beneficial revolution could happen with the vital task of upgrading the existing housing stock - Government must provide funding and education, and certain planning laws must be amended.

## CONCLUSIONS SO FAR

The National Planning Policy Framework contains plenty of scope and broadly addresses the issues at hand, although its definition of 'sustainable' seems woolly and climate change is not stressed enough.

There is scope within the various planning acts and guidance documents for Councils and LAs to advance significant change in the standards of new development - Section 19(1A) of the Planning and Compulsory Purchase Act 2004 requires LAs to include in their Local Plans "policies designed to secure that the development and use of land in the local planning authority's area contribute to the mitigation of, and adaptation to, climate change".

However more power must be given to LAs and their Local Plans/Design Guides, including allowing them to improve on national standards if they so wish. Increased budgets must be allotted by central government for LAs to increase the staff to enforce the Plan and standards.

The sub-standard developments that we have become inured to are not really the 'fault' of any one party, more a result of the whole system, which developers are bound to and able to subvert because they are given the burden of responsibility of production by beleaguered councils.

Currently, there is no need for the financiers to demand better or the housebuilders to build better, when they can make perfectly acceptable profits on the status quo, and it is easy for the house-builders to say that they build what people buy, because people have only got the choice to buy what is being built. There is in effect very little competition – whether you buy your petrol from Esso or Shell isn't going to advance the technology of wind turbines.

Building standards for both new build and refurbishment do not go far enough.

Small-scale development is likely and able to provide a higher quality product, and is better for local economics, but it also currently often less viable and carries greater risk.

Retrofit and refurbishment is not generally being carried out in any meaningful way or to anywhere near the required scale.

Education and awareness-raising is necessary across all stakeholders.

## STRATEGIES

The National Planning Policy Framework must be simplified and strengthened with regard to climate change, which must form part of the general background onto which other guidance is issued, rather than an addendum.

When producing their Plans and Guides, and when dealing with developers, councils and LAs should not be reticent to involve the local experts of the private sector.

There are ways of redressing the imbalance between LAs and large-scale development – the new London Plan, 2019, attempts to improve the chances of the desired schemes by exempting those which meet the requirements from submitting detailed financial information, whilst expecting exacting reports from those that don't. This should both increase financial transparency and also incentivise developers to increase forward-thinking housing.

Another approach is for LAs and councils to turn financiers and 'front-fund' projects which then repay over a long period as the development is realised and released. One such example is Cranbrook, a successful 8,000-home new community in East Devon located 7 miles east of Exeter City Centre, led by Devon County Council who produced a design guide and were able ensure that their masterplan was fully realised.

Another option is for LAs to become clients again, enabling them to impose rigorous standards and ensure the most desirable mixture of building type. There are numerous good examples of modern 'council housing' developments, this article is a good place to start: <https://www.theguardian.com/cities/2019/oct/28/meet-the-councils-quietly-building-a-housing-revolution>

The IPCC argues in particular that 'compact' cities are the urban form most likely to help limit temperature rise. It is well known that towns and cities that are densely populated, with electrified transport systems and high rates of active travel, produce the fewest greenhouse gases. Shropshire is a rural county, and as such cannot develop in this way, however it may be better to develop a few places a lot, rather than lots of places a bit – or it may not. An in-depth study in terms of sustainable development in Shropshire with particular regard to climate change should be commissioned and input invited from local experts.

From the opposing point of view, it is important that the public is educated about the difference between barely acceptable and good design, and attitudes to 'alternative' houses are changed. It is not simply about what a house looks like, as good design will also promote physical and mental well-being, and create inclusive sustainable communities.

As we use our towns differently, we will undoubtedly convert more retail and office space into living space – which is a much more sustainable thing to do than building new in green fields, but the loophole that these need only be poorly-performing conversions must be closed.

Retrofit and refurbishment projects will often come up against gratuitous obstacles laid by planning and conservation officers when it comes to the addition of energy efficiency measures, and there is an urgent need to educate the Department.

Building standards for both new build and refurbishment must be improved and rigorously enforced.

## RECOMMENDATIONS

Lobby the Government to revise the NFFP and encourage neighbourhood plans to address climate issues and contribute to carbon reductions in line with the climate change act.

Lobby the Government to introduce tougher build/refurbishment standards.

Lobby the Government to drop VAT on energy efficiency products and projects.

Enforce the carbon auditing of local plans and achieve carbon reductions in line with the Climate Change Act.

Ensure the consultation process of the Local Plan reaches far and wide; produce a Local Design Guide and use it to normalise and localise discussions of climate change.

With local expert support, councils and LAs must try new and creative ways of producing and funding development across all scales. Commission a report detailing some of those that have been successful elsewhere.

Ensure that any developments that require planning permission also include energy efficiency improvements wherever possible.

Ensure local planning advice to developers is co-ordinated to ensure consistency between energy, design and heritage matters.

Planning departments, builders, and house buyers must have their awareness raised about the issues and be educated about the possibilities. The whole concept must be sold as an exciting and optimistic future – it is.

Supply yards and DIY stores must be convinced to stock the materials and technologies for all of this to happen.

General References – no particular order

<https://www.gov.uk/guidance/national-planning-policy-framework>

<https://www.gov.uk/guidance/plan-making>

<https://www.gov.uk/government/publications/national-design-guide>

<https://www.gov.uk/guidance/housing-supply-and-delivery>

<https://www.gov.uk/guidance/climate-change>

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<https://www.theccc.org.uk/wp-content/uploads/2019/02/UK-housing-Fit-for-the-future-CCC-2019.pdf>

<https://www.bioregional.com/projects-and-services/case-studies/bedzed-the-uks-first-large-scale-eco-village>