Good COP or Bad COP – What can you do for your home to address climate change?

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Guest blog by Chiswick architect Paul Vick, who was at COP26 Green Zone in Glasgow on The Built Environment Day

The bigger picture on climate change is global and can be rather overwhelming. With increased extreme climate change particularly abroad (forest fires, drought, flooding seeing famine, migration, increased conflict over scarce resources et al), the picture may at best be gloomy and all importantly feel remote.

There is defined 'climate despair' with instances of clinical depression and extensive suicides (reportedly 60,000 suicides reported in India from climate despair for example) [https://www.theguardian.com/environment/2017/jul/31/suicides-of-nearly-60000-indian-farmers-linked-to-climate-change-study-claims] . This first sense of disempowerment then might be shared.

As the CEO of Ceres, a US non-profit fund representing an investor network of $47 trillion, says: the huge movement in private action already underway is not enough [https://www.ft.com/content/a0c01a33-fda3-4918-bead-dba61265ec48] .

At the same time, it would be easy to forget the optimism and determination that was palpable in Glasgow. And whether they have agreed to 'phase out coal' or 'phase down coal', both of which are enormous and unprecedented steps by the way. But what can we do about it, now, at home?

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Let's not pretend that it may appear difficult to separate the wheat from the chaff on advice of what we should do, and with all the media hype and marketing material we have come to expect.

The first step, is to point out that a lot has happened already and is ongoing. Huge steps have been undertaken in UK's infrastructure in carbon emissions terms historically from moving away from coal and increase in renewables, like wind, to reducing GHGs (greenhouse gases) in vehicles in London (first as a result of the congestion charge, cleaner public transport and now the extension of ULEZ as well as changes in work and travel patterns after lockdown). This has also improved air quality for us. The National Grid's website app 'Whentoplugin' shows what is producing our energy in real time and they encourage us to use the grid at times when there is a greater percentage of renewable energy production.

In London, GLA launched the circular economy route map in 2017. The principles of reduce, recycle, reuse have been a mantra for GLA for some time; in circular economy terms it may be rephrased 'eliminate, circulate and regenerate' where we move from a consume and waste economy to benefitting throughout a positive feedback (re)cycle. Fashion and food are moving at pace globally with for example both Walmart and Nestle committed to the circular economy (the latter with 500,000 farmers in their supply chain that they are looking to help move to regenerative farming). The Green New Deal led by the London Mayor and London boroughs report that economic analysis of their route map estimates that their actions can contribute £2.8bn towards a wider £7bn opportunity for the capital as well as 12,000 new jobs. They are looking for 50 SMEs to help with direct funding and advice (relondon.gov.uk/circular-economy-explained [https://relondon.gov.uk/circular-economy-explained]).

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As well as the clear existential need to act, the benefits and reasons to act through the built fabric of our homes directly are:

- Flooding. For years we as architects have been going above regulations to deal with increased rainfall. The benefit of water reuse is beneficial with hose pipe bans and droughts more likely and not complex to organise.
- Reducing energy consumption makes sense with increasingly higher energy costs and still mixed production of energy sources, aswell requiring smaller heating systems.
- Accelerating legislation with planning permission (generally needed to do a development at all) and Building Control. A route map has been laid out but this appears to need to be accelerated and there is substantial pressure to do so.
- Increased comfort, well-being and air quality
- And signs are that the market prices of property will demand lower energy houses, above minimal legislative requirements.

How we tangibly reduce our greenhouse gas emissions from our home is fraught with complexity. So where to start?

23% of our green house gases come from buildings, of which 17% are the services that supply them. Moving to green tariffs and moving pensions to green funds are all part of the meaningful mix. Public sector municipalities and cities have looked to do this on a city scale with their pension schemes and investments (eg Pittsburg has 99% of its city pension fund worth $700m in sustainable investments already), why not us individually?

At the same time UK buildings are some of the most inefficient in Europe. Reducing energy, reduces demand on energy and on the embodied energy (and cost) in the machinery (eg boilers and heat pumps et al). You do not have to glue yourself to the road to insulate your home or buildings. Insulation is a comparatively cheap material in construction material terms. Looking for an insulation that uses materials that do not harm the environment is important. And so too making it airtight.

Images above: Low-Energy, 1st to 3rd Age Private House, Devon – it consists of a single storey new build dwelling with refurbishment of an out-shed into

additional rooms.

We have designed and had built low energy new build and retrofit over the last 14 years (Passivhaus AECB standard and Passivhaus retrofit), and I drafted a zero carbon plan for an 8000 home development 20 years ago – it has never really been only about the technology but rather its application. Discussion often revolves around a magic bullet of finding the right technological heating system. However, reducing the load and need for heating capacity is perhaps the cheapest short and longterm. 'One can always put on a jumper'. This is helpful but it does not heat the water for you or cook food, and today's standards of thermal comfort and market expectancy do not fully support this approach. We have also designed mixed use and alternative building types to apply these design principles, and there is efficiency in scale of action.

With new build low energy buildings, experience tells us that they do not have to be more expensive, you just have to spend the budget differently, think a bit harder, design it with the right advice and buy well. Planning ahead is key. It turns out there can be a lot of waste in not having thought through decision-making and construction.

With 80% of the building stock expected still to be in use by 2050, the chances are your current house will be here in 30 years too. This in itself is positive for efficiency of the embodied energy already used in our buildings.

Adding insulation to the outside of properties is one strategy but this may not always work where the outside matters and is restricted under planning legislation. We undertook a low energy retrofit (Passivhaus retrofit) some years ago and planning constraints meant the outside would be largely untouched. Undertaken at the same time as a complete refurbishment and additions this was clearly the time to undertake any interventions with internal continuous insulation behind facades and structures decoupled from these facades, improved air tightness, low speed warmed air from recycled heat (MVHR), careful detailing and a number of new windows.

Even with mechanical replacement expected, we hope the main fabric of the house will last another 100years or so. In the meantime, the house is warmer, energy demand lower and bills less. The ambition and ability for better buildings is also with us since then as all aspects of design understanding, infrastructure and materials are improving at pace.

Our suggestion is after reducing the energy load, shop well for professional advice and materials. It can be done.

Paul Vick Architects was named most Innovative Architecture Firm London 2018, 2019, 2020 and Best Construction Adviser UK 2017.
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