



# The future

With climate change ever higher on the agenda, **Danny Sharpe** of project management consultancy Northstar looks at the options for the care home sector in building a greener future.

Well, it seems that Climate Change has carried on whilst we have all been under house arrest from Covid 19. In fact, one of the most interesting statistics - in a year defined by statistics - is the reduction in CO2 emissions during the past 12 months of minimal travel. For years we have heard of the harmful impact of fossil fuel guzzling cars and planes and the need to offset our 'carbon footprint'. Well, after a year of very few flights and fewer cars on the road (at least during the first lockdown), CO2 emissions globally fell by... about 5%. That came as a big shock to me. I had imagined we would see a huge reduction in emissions and that we would all see the need to fly and drive less and that this would be the silver lining to the cloud of Covid-19. So, what on earth do we need to do to make meaningful inroads into reducing the 51 billion tons of greenhouse gas emissions being pumped into the atmosphere every year?

## Construction is key

We need to start with the industries, activities and materials which actually are responsible for the majority of the emissions, and that means - construction and the built environment, amongst others. The World Green Building Council reports that buildings are currently responsible for 39% of all global carbon emissions. 11% of these emissions come from so-called 'embodied carbon' - that is the emissions which result from the manufacturing, transportation, construction and end of life phases of a building. The remaining 28% is made up of 'operational carbon' or emissions due to heating, lighting and powering our buildings. These emissions trap heat in the atmosphere and prevent it from leaking out into space as part of the earth's natural cooling system. As the planet heats up, so climate change brings more floods, rising sea levels,

Okay, so you've got your new hybrid car, your home is well insulated, you turn off lights in rooms you are not going to be in and you have chosen to stay at home, rather take that unnecessary flight to Spain for your holiday - okay perhaps that wasn't entirely your choice but, nevertheless...you are doing your bit for the Green Revolution. So what's all the fuss about? Why are people still banging on about Climate Change and why are senior politicians from all over the world meeting up in Glasgow this year for another telling off by David Attenborough and Greta Thunberg?



# is green

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coastal erosion, forest fires, drought and crop failures leading to food shortages.

Now I know you are a good person and so you don't like seeing polar bears losing their natural habitat and those fires in Australia look terrible, but, still, you're wondering what this has to do with you and your plans to build and run care homes in the UK. Well, quite a lot I'm afraid...

A lot is made of the extreme weather events triggered by Climate Change in areas which already have extremes of hot and/or cold weather. Raging bush fires in the Australian outback or the forests of California, melting polar ice caps, the effects on biodiversity and climate change of the deforestation of the world's rainforests, etc. But, in the UK we are starting to see severe weather events of our own in the form of floods which are becoming practically an annual event in many parts of the country, more extreme heat waves and droughts in the summer and warmer, wetter winters. All of this is

less dramatic than some of the more extreme events mentioned above but heat waves do lead to excess deaths of elderly, vulnerable people who may be more susceptible due to having pre-existing respiratory or cerebrovascular diseases. Droughts, crop failures and food shortages lead to higher prices and flood damage to buildings can lead to financial ruin for homeowners and businesses unable to get adequate insurance.

## What are we going to do?

So, what are we going to do about it? If you are planning on building a new care home or are about to embark on a major refurbishment of your existing stock, you need to know what the new targets are. The World Green Building Council has set a target for all new buildings to be 'Net Zero Operational carbon' with 40% less 'Embodied Carbon' by 2030. This is to be followed up in 2050 with all new buildings demonstrating 'Net Zero Carbon' in both operational and embodied carbon emissions, as well as making sure all existing buildings achieve 'Net Zero Operational Carbon' emissions too. The current Government has

made a commitment to tackling Climate Change and is hosting the COP 26 Summit in Glasgow in November of this year. The Government has also announced a target for net zero emissions by 2050 and plans a 68% reduction in greenhouse gas emissions by 2030 when compared to 1990 levels – a rate faster than any other major economy. Anyone looking to commission a new building now needs to take account of these targets and make sure that their building will be 'future proofed' and in line with both embodied carbon emissions during construction and operational carbon emissions during the running of the building

The first task when designing a new building aiming for low / zero embodied carbon is to undertake a Materials Life

Cycle assessment. This looks at a range of options for the superstructure and the sub-structure of the building as well as the landscaping and the heating and cooling systems used. By looking at the carbon emissions created during the manufacturing of the materials, the transportation to site, the construction process itself, the refurbishment / replacement of materials and the end of life / recycling or disposal phase, we can choose the optimum combination for lower carbon emissions. Given that steel and cement manufacturing account for 10% of all greenhouse gas emissions, this can really focus the mind. Once that has been done, the designer needs to take a 'fabric first' approach to the building, meaning that the thermal efficiency of the building is 'beefed up' so that the building stays warmer longer in winter and stays cooler longer in summer. This means that the demand for energy is reduced. Given that most energy still comes from fossil fuel sources – oil, gas, coal, etc – this helps to reduce 'operational carbon emissions'. The lower energy demand should be met as far as possible through renewable sources of energy – wind / solar / geo-thermal, etc.

The smart care home operators and developers are already taking this into account when commissioning new buildings. Whilst capital costs will be higher initially, the payback period is getting shorter as evidenced through lower running costs and lower maintenance bills. Having a future-proofed building also gives peace of mind as these new targets for lower emissions get nearer and nearer – 2030 is not that far away! Investors are increasingly looking for buildings that have solid green credentials to enable them to get into new, emerging technologies but also to invest in the type of socially responsible projects their shareholders are increasingly demanding. The added commercial benefit being that they will also meet future standards without a lot of retrofitting being needed as legislation tightens up. ct

