

The Climate Emergency: An Overview

In support of the Global Climate Strike on September 20th, we dedicated our 20:20 presentations to the topic of climate change – the problems we face, and how we can help as both individuals and architects.

In 1990, the Intergovernmental Panel on Climate Change (IPCC) first reported an increase in global temperatures, which was attributed to an increase in Carbon Dioxide in the atmosphere. This was largely ignored, as people considered global warming a myth.

Since 1958, the NOAA Mauna Loa Observatory have been recording atmospheric CO₂. Their published data demonstrates a 25% increase in atmospheric CO₂ since 1960, in line with the global population explosion of the late 20th century. Over a similar time period, annual temperatures have been higher than usual and since 2006, we have experienced the five warmest years since records began in 1884.

It wasn't until 1992 that countries began to discuss limiting and reducing their emissions in an effort to halt global warming. The commitments made at the Rio Earth Summit weren't met, but this formed the foundations for the legally binding 1997 Kyoto Protocol and 2016 Paris Agreement.

The Paris Agreement has been signed by the majority of the world's countries. Its goal is to limit global temperature increase to well below 2°C, with 1.5°C the recommended limit. Each participating country must set Nationally Determined Contributions (NDCs) to meet this goal. The difference between 1.5°C and 2°C is significant, and demonstrated in the WWF infographic (bottom middle).

Green House Gases (GHG) Emissions Accounting is how we measure the emitted GHG in a region over a specific period of time, and can be measured in a number of ways. Territorial based emissions are those produced within the boundaries of the UK, and are submitted as part of the Paris Agreement to demonstrate compliance with our agreed goals. However this does not consider consumption based emissions (those produced by goods and services which are consumed by UK residents), which are significant. A recent report released by C40 cities entitled 'The Future of Urban Consumption in a 1.5°C World' demonstrated that government commitments and Deadline 2020 pledges will not be enough to close the emissions gap. (bottom right)

In October 2018, the IPCC released a special report on Global Warming of 1.5°C. The report estimated that we would reach the 1.5°C increase between 2030 and 2052. It also found that limiting global warming to 1.5°C is still possible, but that societal shifts resulting in deep emissions reductions would be required. It presented a series of scenarios or 'pathways' to demonstrate this. Notably, all of the IPCC pathways required a reduction of carbon dioxide already existing in the atmosphere. Trees are the best method of 'carbon capture', which is why the Amazon wildfires are so devastating and future deforestation should be prevented. We must act now if we are to mitigate some of the worst effects of climate change.

Eight Things We Can Do As Individuals

1. Calculate your Earth Overshoot Day. Being informed about the impact we have will help us make better decisions. www.overshootday.org
2. Carry a reusable water bottle. Refill London is a great scheme where local businesses offer to refill your bottle for <https://refill.org.uk/>
3. Make everyday item plastic swaps. Did you know that facewipes, baby wipes or any wipes really, can be composed of up to 90% plastic? There are many reusable or biodegradable alternatives now available.
4. Consider your mode of transport for holidays. A return flight from London to Rome generates more CO₂ than a citizen of some African countries produces in a year.
5. Shop more sustainably. The fashion industry, and particularly fast fashion is one of the worst contributors to emissions. The UK is the biggest consumer of fast fashion in the EU, with fast fashion purchase increasing by 565% between 2012 and 2016. Avoid textiles containing microplastics – polyester, polyamide and acrylic.
6. Try Meatless Monday. For every beef burger you skip, you can save enough water to drink for the next three years. A single serving of beef also equates to 348 miles driven in a car.
7. Consider your home energy usage and supplier. <https://bigcleanswitch.org/>
8. Talk to friends and colleagues about these ideas!

Six Things We Are Doing As Architects

As architects, we have a huge degree of influence over the environmental performance of the built environment, which accounts for nearly 40% of global greenhouse gas emissions. For this reason, the most important thing we can do is to set high aspirations to make our buildings as environmentally friendly as possible, and to ask questions about whether they could perform better. Being curious and informed on issues such as embodied carbon, building envelope performance and designing for a circular economy will enable us to make good strategic decisions from the outset of a project.

1. We always aim to go beyond the building regulations with regards to environmental performance. We are designing for Net Zero Carbon buildings by 2030 in line with the RIBA's 2030 Climate Challenge

<https://www.architecture.com/about/policy/climate-action/2030-climate-challenge>

2. Designing using passive and Passivhaus principles reduces energy demands over the building's life and contributes to a healthier indoor environment.

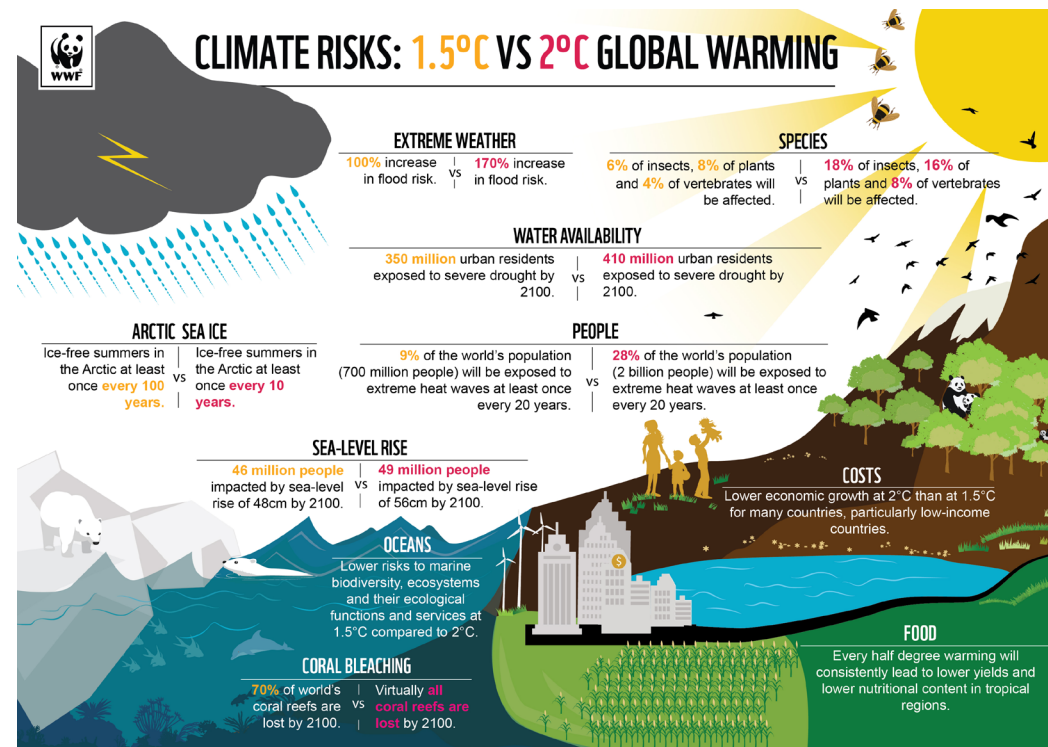
3. Material choices matter. We look to retain as much of the existing structure as possible, refurbishing buildings where possible. New

materials are specified to be responsibly-sourced and low- or no-VOC products.

4. All waste products are considered a resource, and we aim to adopt the principles of a circular economy in our designs.

5. Integrating whole life-cycle carbon assessment into our BIM processes can help us to understand the impact of our design choices and allow us to optimise the use of materials with high embodied energy (the Orms research team is on it – watch this space!)

6. Buildings must be beautiful, flexible and resilient. They must be able to adapt to our changing climate and needs.



Past Events

On the eve of the Climate Strike, The Architecture Foundation hosted The Architecture of Emergency summit at the Barbican, bringing together designers, activists and citizens to consider the path ahead in an era of climate crisis. You can watch the full summit here: <https://www.dezeen.com/2019/09/19/architecture-of-emergency-talk/>

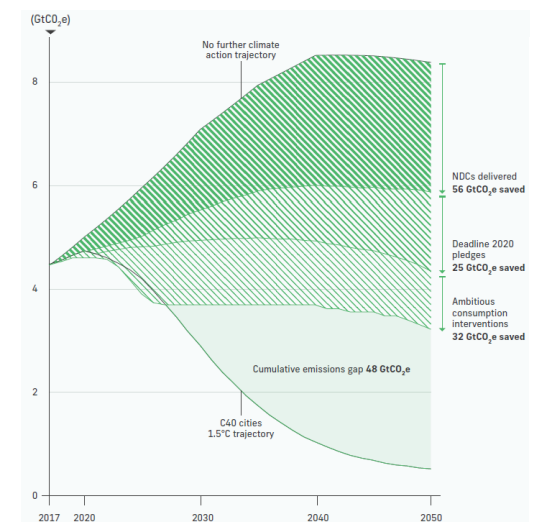
We really enjoyed the Councils x Climate Change event organised by Public Practice at the Design Museum. It explored the role that local authorities can have in tackling climate change. The challenges of austerity and the concept of a 'circular economy' were both discussed at length, with former RIBA President, Sunand Prasad, reminding us that money is, after all, a kind of circular economy.

Future Events

Eco-Visionaries: 23 Nov – 23 Feb, The Royal Academy.

An exhibition exploring how architects, artists and designers are responding today to some of the most urgent ecological issues of our times.

The Future of Urban Consumption in a 1.5°C world, a C40 Cities Report.



This graph shows the predicted GHG emissions of the C40 cities if no further action is taken. It also shows the emissions savings made by national government commitments (NDCs), Deadline 2020 pledges and proposed further 'Ambitious' consumption interventions. It shows that even if all of these were implemented, an emissions gap would still exist.

Orms Sustainability Group are:
Alisha Gould, Anna Fiejtke, Carlos Espejo, Colin McColl, Ellen Hickman, Izzy Tribble, James Gardener, Kathryn Knowles, Lyndal Mackerras, Nick Botterill, Rachel Hoolahan, Rosie Bard & Sasha Greig.