



RACHEL BAILEY & BECCA DUNCAN

LISTEN AND LEARN

RACHEL BAILEY AND BECCA DUNCAN SHARE WHAT THEY'VE LEARNT SO FAR FROM THE SERIES OF WEBINARS THEY HAVE PUT TOGETHER ON DESIGNING GARDENS THAT HAVE A POSITIVE IMPACT ON THE ENVIRONMENT

We are all increasingly aware that we need to be designing and building gardens and landscapes that are 'sustainable'. On this basis, the gardens we create should not result in the destruction of natural landscapes for the extraction of resources or the emission of high amounts of carbon dioxide/greenhouse gases and the production of waste. They should minimise negative impacts on intensity and frequency of extreme events and create habitats and enhance biodiversity. With a now nine-year target to limit the global temperature

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rise to just 1.5°C and avoid a catastrophic event¹ plus the devastating destruction of habitat and decline in wildlife, we need to urgently address the design of our streets, parks and gardens.

Recently, many conversations in the industry have focused on *what* we should be doing, and these have often raised more questions than answered. The question is, *how* do we go about

this? With this in mind, we reached out to some leaders in their fields to find out how we could design more sustainable gardens.

With the backing of Zero Waste Scotland, we put together a free webinar series on Sustainable Design Solutions for the landscape industry in response to the climate crisis. At the time of writing, three of the talks have been aired and have been extremely well received. By the time you read this, the live series will be completed; however, all of the videos (except 'Tomorrow's Timber') are available on YouTube².

At the start of this year, landscape architect Eustacia Brossart beamed in from San Francisco to explain the climate positive challenge and demonstrate Pathfinder v2.0: The carbon calculator for the landscape industry³. The climate positive challenge was devised to encourage those of us in the landscape industry to 'strive to get positive on all our projects as soon as possible by reducing carbon footprints and increasing sequestration in the places we design, specify and build'. The suggested targets are five years to positive for parks, residential, mixed-use or campus developments, and 20 years for streetscapes or plazas.

This may seem a tall order, but the projects registered on the website to date are projected to closely achieve this (21 years for streetscapes and

nine years for parks, gardens and campuses). Together, these designed landscapes will sequester 1.6 million tonnes of greenhouse gases in 10 years⁴.

Eustacia demonstrated how the Pathfinder v2.0 carbon calculator tool, which she co-designed with Pamela Conrad, can help us calculate not only the embodied carbon within our designs but also how much carbon can be sequestered as a consequence of the design. Pathfinder v2.0 is a free web-based app linked to the Climate Positive Design website. Whilst in its infancy, the calculator together with the design toolkit proves a powerful and relatively easy tool that each one of us can apply to the gardens we are designing, building and maintaining.

It was remarkable how huge savings in carbon could be created by making small changes to the design, such as planting more,



reducing the paving, using materials such as timber and considering the long-term maintenance of the landscape. Encouragingly, Eustacia said that clients invariably bought into a change in a design – whether through a change of material choices and/or increased planting – when they saw the effect the changes had on reducing the number of years for the site to become carbon positive (i.e. to start sequestering carbon dioxide).

Following on from this, Nick Ribbons of Zero Waste Scotland⁵ gave an informative talk on circular economy approaches in the landscaping industry. He provided food for thought on how we can reduce the impact of the gardens we design and build on the environment by designing out waste and repairing, reusing, repurposing and, as a last resort, recycling materials. He emphasised the need to design for deconstruction.

For example, designing for easy access to components that have a short lifespan so they can be repaired or replaced without full scale demolition. At the end of the structure's life, whether that be from a change in client's needs or the end of life of major components, the item can be dismantled, and the materials can be reused, repurposed or finally recycled. This has been widely considered in the building industry, but there is plenty of scope to translate these approaches for landscaping projects. Nick reiterated that clients buy into the reduction in waste when they are involved right from the beginning of the project.

We know that bricks and concrete have a huge carbon footprint due to the CO₂ that is emitted during the firing of bricks and during the production of cement, respectively⁶. In our third session, Dr Sam Chapman from Kenotek talked to us about their patented 'K-Briq', an unfired brick.

The K-Briq is made nearly exclusively from waste materials and boasts the highest recycled content of anything in the UK. Full certification of the K-Briq as a facing brick is projected for the end of 2021. Whilst in its infancy, this brick has huge potential as an alternative construction material for the landscape industry. The company is looking to further develop the patented K-Briq as a brick-slip for cladding and as an alternative to clay pavers, and is very open to work with us to further develop its range.

Please check out these and other talks in the series, which include: Soil, the Climate crisis and the landscape industry given by Professor Colin Campbell, James Hutton Institute; Garden Lighting: the effects on wildlife and design



solutions by Dr Davide Dominoni, Glasgow University; Streets and Gardens as a Resource for Biodiversity by the ecologist and plantsman Kevin Hughes (Cally Gardens); and the Innovative use of Sustainable Timber in the Landscaping Industry given by Dr Pablo van der Lugt, an architectural engineer and sustainability consultant.

This series of webinars should enable us to make better informed decisions during the design process, so that we can create 'net positive' gardens. Collectively, we have the ability to make a significant impact on retaining natural landscapes, protecting wildlife and minimising extreme climate events.

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From what we have heard so far, sustainable landscape design solutions do not compromise our ability to create beautiful and healthy outside spaces, underpinned by good ethical principles for our clients. There is increasing evidence that children growing up surrounded by green space are healthier and more productive. Trees absorb pollutants in the air and water creating a healthier and more resilient environment. And using less paving and more planting in a garden is more cost effective, which is always in the client's interest!

- ¹ IPCC special report, Global Warming of 1.5°C Oct. 2018. <https://www.ipcc.ch/sr15/>
- ² <https://www.youtube.com/channel/UCIEPU5E1hx7Atx8V2FoabFA>
- ³ Climate Positive Design and Pathfinder www.climatepositivedesign.com/pathfinder
- ⁴ <https://www.archdaily.com/954919/pamela-conrad-on-climate-positive-design-landscape-architecture-and-carbon-sequestration>
- ⁵ Zero Waste Scotland: <https://www.zerowastescotland.org.uk>
- ⁶ <https://cen.acs.org/materials/inorganic-chemistry/Alternative-materials-shrink-concretes-giant/98/145>

ABOUT BECCA DUNCAN AND RACHEL BAILEY

Becca Duncan and Rachel Bailey are award-winning garden designers based in Scotland. Rachel is also a permaculture designer with a long-term interest in sustainable design. They create anything from naturalistic wildscapes to more traditional sub-urban and town gardens, all with a strong focus on planting and the environmental impact of their designs. They are also regional coordinators (Scotland) for the Society of Garden Designers. www.blossominggardens.co.uk www.rachelbaileydesign.co.uk