





Our vision is that all blade material is repurposed into useful, sustainable and beautiful structures, ensuring that none of it goes to landfill. By repurposing decommissioned wind turbine blades into sustainable infrastructure, we can decouple the production of renewable energy from the generation of waste, which is paramount in making progress against SDGs 7, 12 and 17.

Blade repurposing innovation doesn't just happen...

BladeBridge is the start-up company formed by Cork, Ireland based researchers from the Re-Wind Network. Formed in 2017, the Re-Wind Network developed end-of-life solutions for decommissioned wind turbine blades which are environmentally and socially superior to conventional products and disposal methods, as supported by research. The Re-Wind Network is a collection of faculty, staff and students at five academic institutions – Georgia Institute of Technology, University College Cork, Queen's University Belfast, City University of New York and Munster Technological University – and industry affiliates.



Paul

Kieran

Angie

Meet the Team

CEO

Dr. Angie Nagle

Angie's PhD research with the Re-Wind Network combined Life Cycle Sustainability Assessment and the Sustainable Development Goals, to assess repurposing concepts for decommissioned wind blades.

The BladeBridge business concept was initially based on Angie's research, along with the research of her Re-Wind colleagues.

Previous to this, she was a process engineer for Boston Scientific and Intel.

CTO

Kieran Ruane

Kieran is a Chartered Civil and Structural Engineer and a lecturer in the Department of Civil, Structural and Environmental Engineering at MTU.

Kieran is a former director of RPS where he was Head of Bridges and he has nearly 30 years' experience in the design and delivery of civil engineering works of all scales.

Head of R&D

Dr. Paul Leahy

Paul is a lecturer in UCC's School of Engineering and Architecture, and brings professional connections to the wind sector.

He has mentored and managed over 15 graduate students and 10 research staff and worked in partnership with SMEs and MNCs to deliver R&D in the energy and environmental sectors.

Design Led Innovation

Design Led Innovation

As a Design-Led Business, BladeBridge are committed to searching for the best and most innovative solutions possible, through continuous research and development, long-term strategic & circular design, and commitments to repurposing as much waste material as possible, for the betterment of the planet.

Our dedicated team, of academics, applied researchers and experienced design professionals all strive toward the same goal of utilising the thousands of tonnes of (otherwise) waste material, creating long lasting, truly beautiful and meaningful products, that improve the local surroundings, public engagement and experiences.

By taking these stunning, end-of-life structures back and using them as building materials in a completely new way, we hope to inspire more critical, long-term thinking and design-led solutions.

Windmill turbine blades are prolific. They adorn our landscapes and provide us with power from a renewable source. However, the materials they are built from must withstand the harshest of conditions, for decades. The majority of these blades are made from glass fibre reinforced polymer, which is an incredible composite material, able to last for many decades. Due to the tremendous forces from high speed continuous rotation and harsh weather conditions, each turbine is typically used for under twenty-five years of service before being replaced.

From our extensive research, engineering and investigative structural analysis, we can use these end of life turbine blades as perfectly viable engineering materials, in the building of foot-bridges, telecom towers, public furniture solutions and, potentially, living pods.

For Wind Farms and Waste Management Companies

BladeBridge works with wind farms and waste handlers to acquire unwanted blade material, and then repurpose the material into structural components for bridges. We calculate the abated environmental impacts from this end-of-life option and issue a waste diversion declaration, thereby allowing the generator of the blade waste to share in the credit for choosing the option highest on the waste hierarchy.

For Procurers of Pedestrian Bridges

BladeBridge design and fabricate pedestrian bridges which utilize discarded wind blades as structural support members. BladeBridge is the only bridge on the market that substitutes steel support members with waste material which was destined for landfill or incineration.

This circular material use offers an advantage in tendering under the Green Public Procurement requirements.





Photo: Achill Island- Greenway



Photo: Achill Island- Greenway

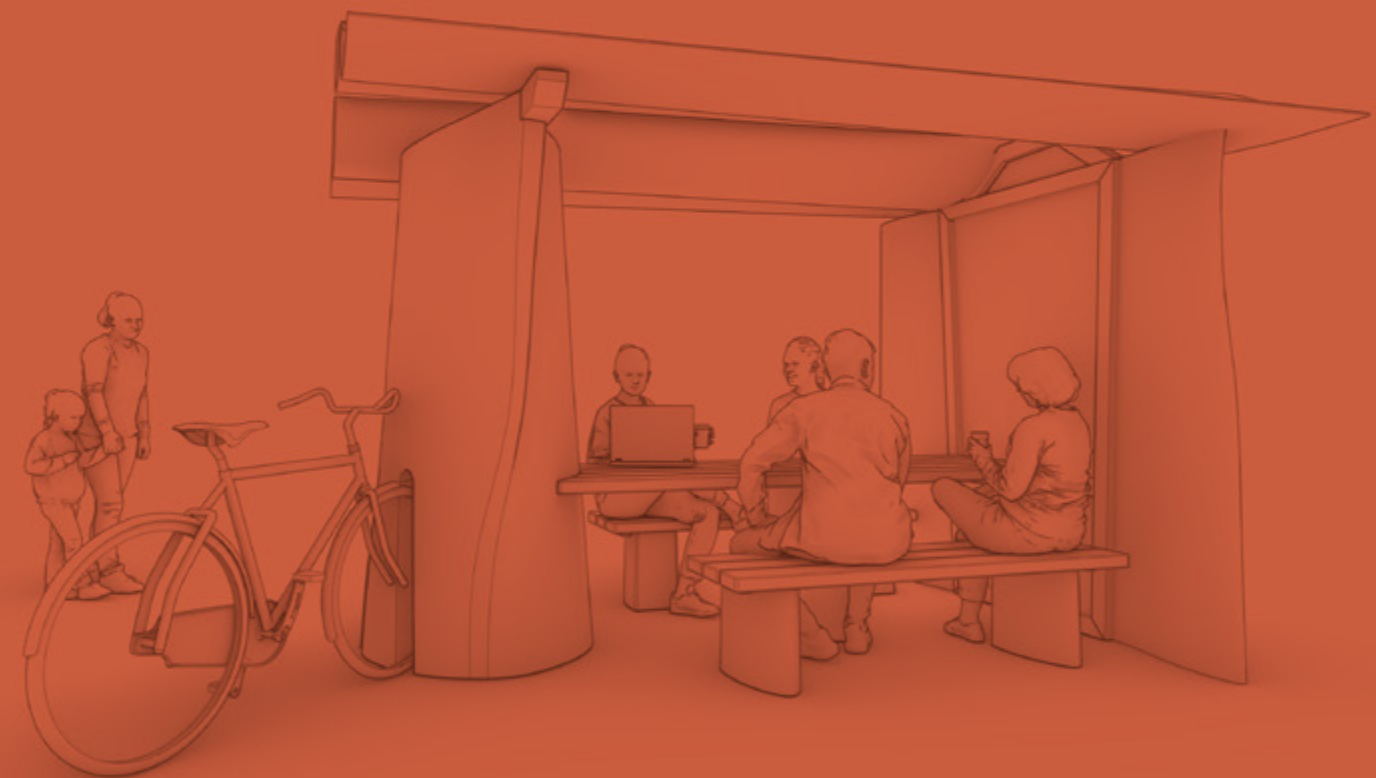
Pavilion Series

Achill Shelter

Working closely with Mayo County Council, we are so proud to present our custom double Achill Shelter installations. Based in the most westerly part of Ireland, these shelters have to withstand the most harsh of weather conditions.

Our shelter comprises a full 20m blade, from the Barnsmore wind-farm, in Donegal, after generating electricity for over 20 years.

It now provides picnic seating and benching for passers-by, shelter from the elements as they look out over the Atlantic ocean, and bike parking.





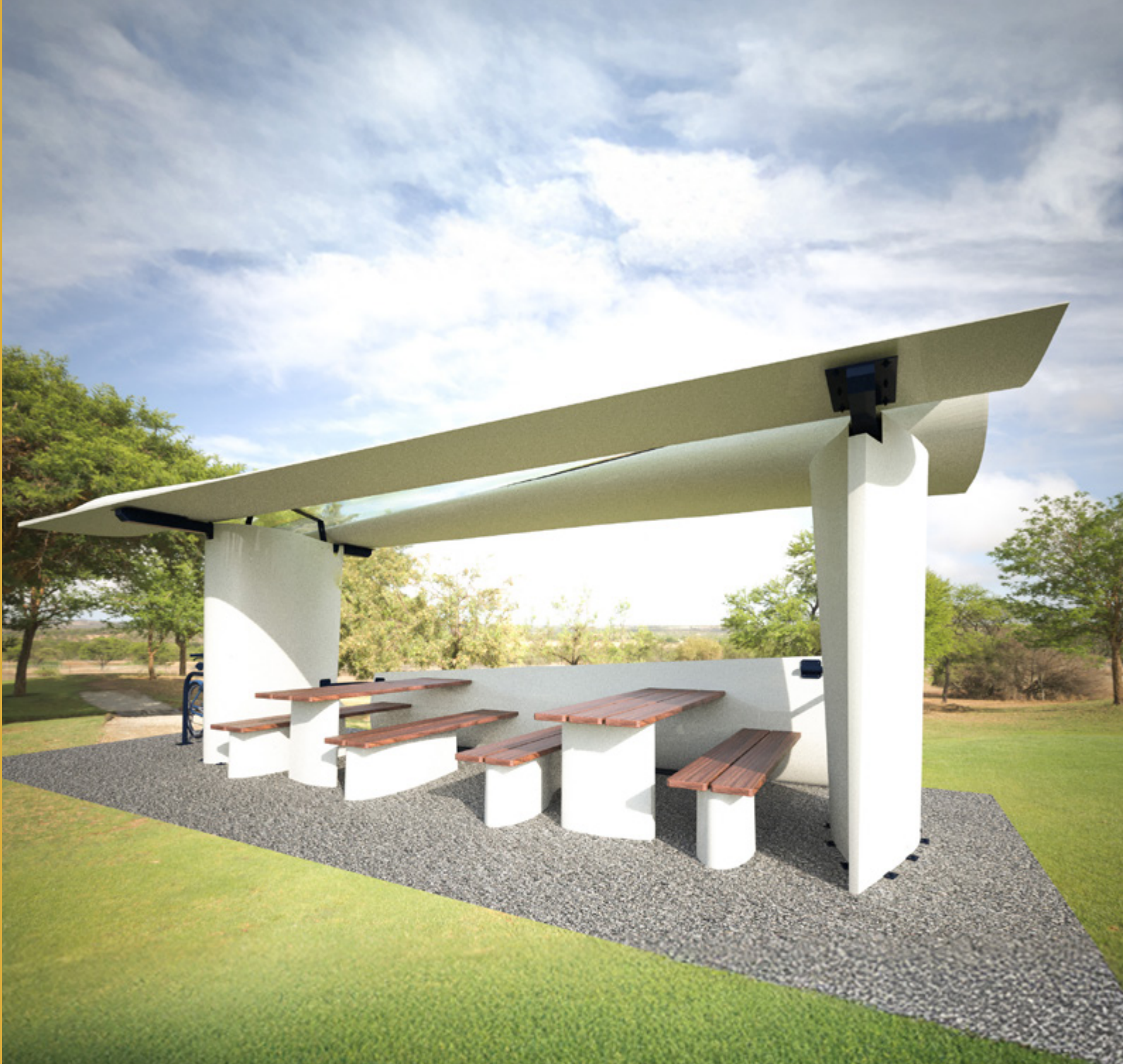
Pavilion Series

Zephyr Pavilion

Step into the future of outdoor dining with our Zephyr Pavilion: the ultimate picnic shelter crafted from repurposed wind turbine blades!

Embrace sustainable style as you gather with friends and family beneath this innovative canopy, providing shade and protection for your memorable picnics and gatherings.

The Pavilion represents our first endeavor into sheltered structures. The incredibly elegant forms available to us for roof structures is just beginning to resonate with us. As we develop these areas, we invite you to check in with us... we already have some stunning projects in the works which will be revealed soon, so lets explore how we can co-develop something absolutely unique and beautiful together.



Renedered Concept



Rendered Concept

Furniture Series

The design process is an artful dance, as we repurpose these blades with the utmost care, preserving their unique characteristics and embracing the whispers of the wind that have shaped them.

The **Zephyr Collection** not only brings a touch of natural elegance to your outdoor spaces but also carries a powerful message of environmental stewardship. With every chair, bench and table, we invite you to join us in celebrating the harmony between design and nature, where the past converges with the present to create a sustainable and enchanting outdoor haven.

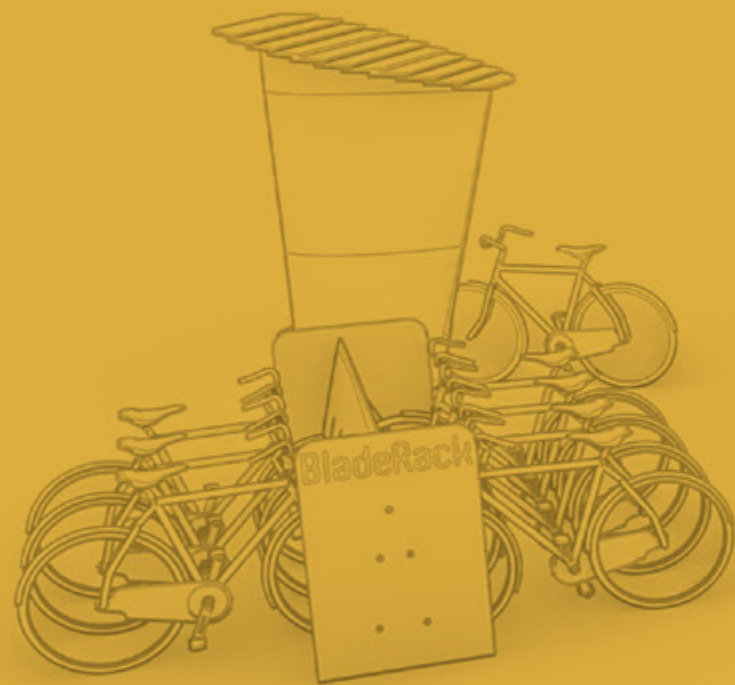
At BladeBridge, inclusivity and accessibility are fundamental considerations in our design process. We can incorporate features such as adjustable heights, spacious seating areas, and easy access points.

Whether it's a park bench, picnic table, or outdoor seating area, we're committed to creating inclusive spaces where everyone can feel comfortable and engaged.

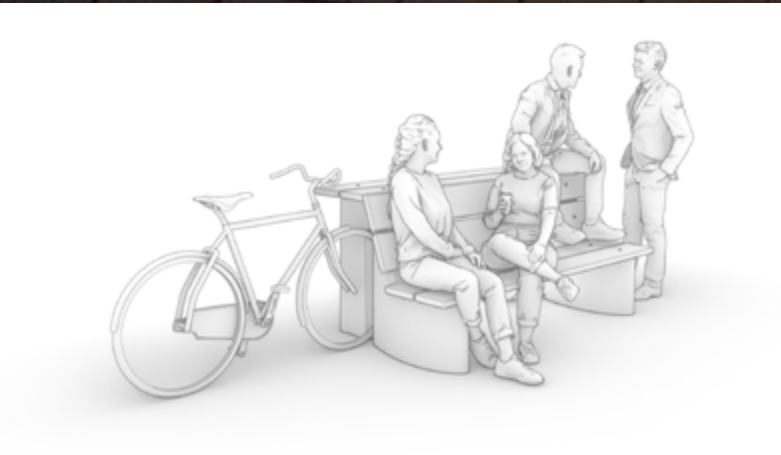
All products in the furniture series can be finished in Larch, Accoya, Iroko, Sapele, or durable imitation wood made from recycled plastic.

Zephyr

noun: a soft gentle breeze



Zephyr Horizon Bench



Initial CAD Sketch



Photo: Achill Island Greenway

Furniture Seies

Zephyr Horizon Bench

This uniquely designed bench offers versatile use with a stepped platform for sitting, standing, dining, or enjoying an elevated seat.

Harmonising sustainability with functionality, it can be modified to include bike parking as well.

As with all of our furniture collections, the Zephyr Horizon Bench is developed around our understanding of the physical postures of congregating people in public spaces, their preference for casual postures when interacting and preference for informal, multi-height settings.

This can be developed at any length, with many material finishes and wood/recycled plastic options.

These bench seats are customisable at the point of design, so chat with us about including your specific requirements, such as bike parking.



Furniture Series

Zephyr Zen

Introducing our Zephyr Zen, a dynamic solution for both urban and rural spaces!

With room for multiple bikes and a design that effortlessly transitions from leisurely lounging to accommodating multiple guests, it seamlessly blends practical bike storage with versatile seating. Perfect for enjoying serene moments alone or gathering with friends for lively social gatherings.

The original Zen Seat was built to suit our 13m blades, however, we have options for longer blades also. This design is customisable in many ways: We can add extra length and depth to the seating area but also, can facilitate many more bike parking bays.

We have also options for lighting, charging of e-bikes or handrail options available.

This shape is totally unique and will really bring your location to life, with our truly elegant and sculptural design.

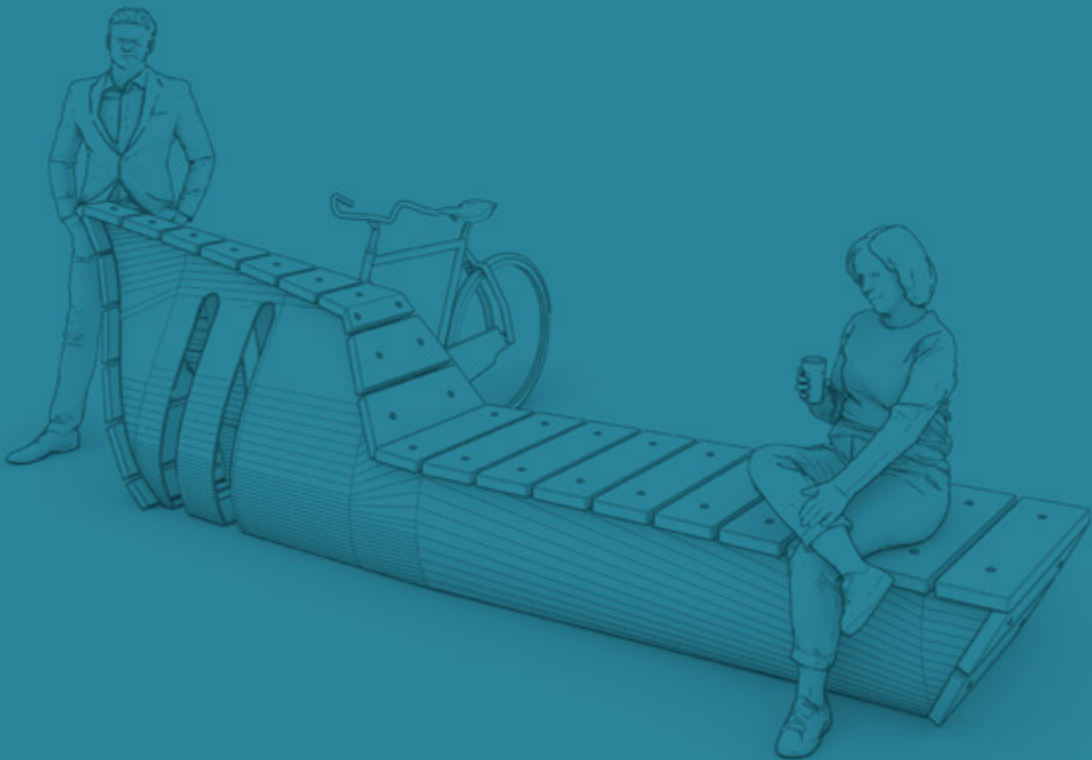


Photo: Achill Island - Greenway

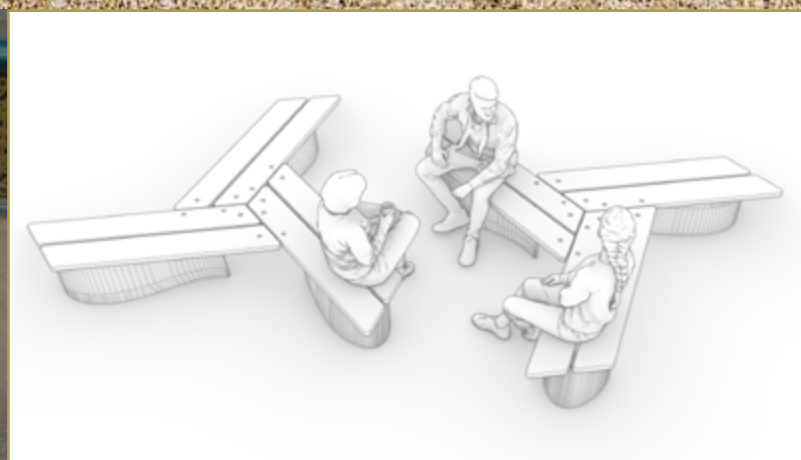


Rendered Concept

Zephyr Tri-Spoke



Rendered Illustration



Layout Suggestion

Furniture Series

Zephyr Tri-Spoke

Taking visual reference from the familiar aesthetic of the three rotating fiberglass blades, our Tri-Spoke seating bench offers a very simple, yet highly aesthetic piece of interactive public furniture for people to sit, relax and enjoy.

This form is an exciting and elegant way to encourage people to interact with each other, but also enables several small groups to cluster and meet on a single piece.

We gave great consideration to how placing several Tri-Spoke benches together can really bring a community together in conversation, but breaking free from the traditional straight line shapes, which we have become accustomed to.

The turbine blades are so organic in shape, we feel it is our duty to develop these exciting and beautiful furniture pieces as a response. Our goal is to encourage people to enjoy and remember their experience when using our furniture and carry with them, a fond memory of these incredible fiberglass blades, in their new life.



Furniture Series

Zephyr Picnic Set

Our Picnic Set is designed to use sectional cuts from our stock of all lengths of blades we have. This is a very simple and proven archetypal form, which can vary by dimension to meet almost any requirement you need.

We cannot claim any inventive rights on form, but our values on this classic bench seat and table hold true to everything that BladeBridge stand for - honesty of materials, longevity, beauty and high quality finish.

We have many material finishes, colour options and dimensions, which we can offer you, so come to us for a chat, before ordering anything. We are excited to see what we can build for you.



Zephyr Picnic Set

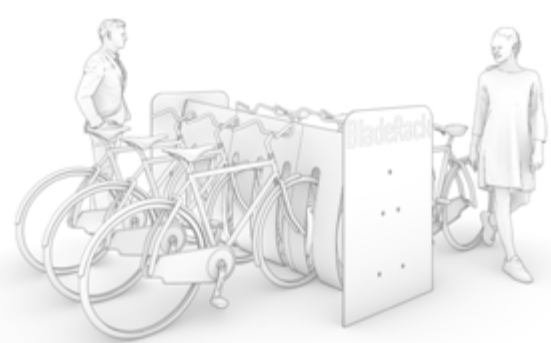


Photo: Spanish Point

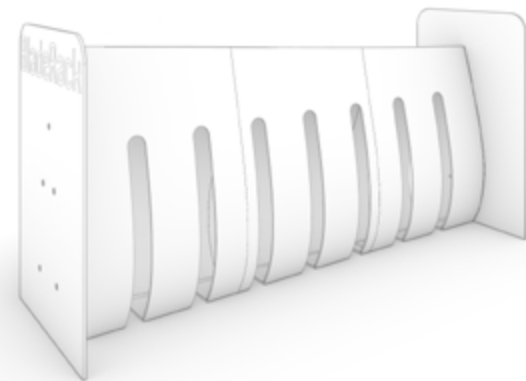
Photo: Kilrush CLDC

Photo: Achill Island Greenway

Zephyr Bike Rack



Initial CAD Sketch



Initial CAD Sketch

Furniture Series

Zephyr Bike Rack

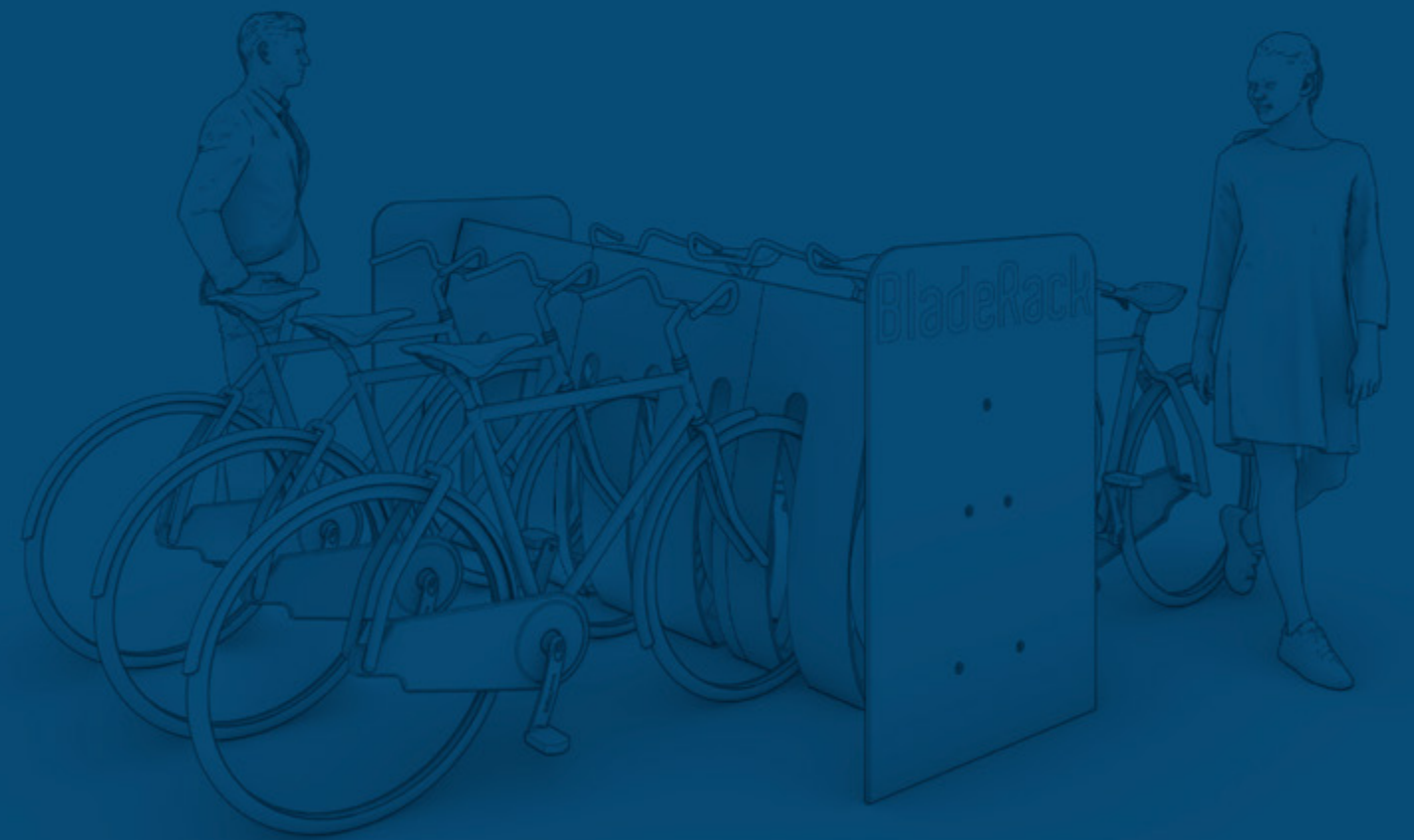
End-of-life turbine blades come in a variety of forms and lengths. In BladeBridge, we look for ways to make repeatable, dependable and elegant product designs, which play to the fiberglass' strength - it's strength!

Since the beginning, we envisaged the end products being used in public spaces. Bike Parks give us a perfect way to use sectional cuts of the blades, to accommodate a large amount of bikes, in a very simple and elegant form.

Our design and engineering team have developed solutions here which range from a simple parking bay, right through to fully electrified, charging station solutions, where we can install lighting and security options.

These hollow section blades are impervious to wear, tear and weather making them the perfect solution for bike parking and storage.

Talk to us about your specific requirements and we will do our best to customise a solution that is right for you and your space.



Furniture Series

Zephyr Haven

Step into innovation with our single-person shelter and bike parking unit, ingeniously crafted from repurposed wind turbine blades.

Take shelter from the elements, stop for a solo lunch or to read a book.

Offering a haven for both you and your bike, this eco-friendly marvel combines sustainability with practicality, ensuring you're sheltered from the elements while your bike rests securely behind you.

Embrace the future of outdoor convenience with this unique fusion of sustainability and functionality!



Zephyr Haven



Initial CAD Sketch



Initial CAD Sketch

Rendered Concept

Zephyr Bike Stand



Rendered Concept



Zephyr Bloom

CAD Sketch

Furniture Series

Zephyr Bike Stand

This product seamlessly combines bike parking and a functional table.

Crafted for both practicality and leisure, it provides a space to park your bike while offering a convenient tabletop for enjoying coffee, lunch, and scenic moments with friends, effortlessly blending utility and social engagement.

These unique tables echo the organic form from the turbine blades, through the offset table top shapes, which are A-symmetrical, soft and stunning. We are able to offer these tables in a huge variety of sizes, to suit small or medium group sizes, depending on where along the blade length we make the sectional cuts.

Such an ultra simple possibility, which also comes with an option to place planting on the table top - like on our **Zephyr Bloom** furniture, to really bring a biophilic touch to the furniture piece.



Planter Series

Zephyr Planters

Step into the future of outdoor dining with our Zephyr Pavilion: the ultimate picnic shelter crafted from repurposed wind turbine blades!

Embrace sustainable style as you gather with friends and family beneath this innovative canopy, providing shade and protection for your memorable picnics and gatherings.

The Pavilion represents our first endeavor into sheltered structures. The incredibly elegant forms available to us for roof structures is just beginning to resonate with us. As we develop these areas, we invite you to check in with us... we already have some stunning projects in the works which will be revealed soon, so lets explore how we can co-develop something absolutely unique and beautiful together.



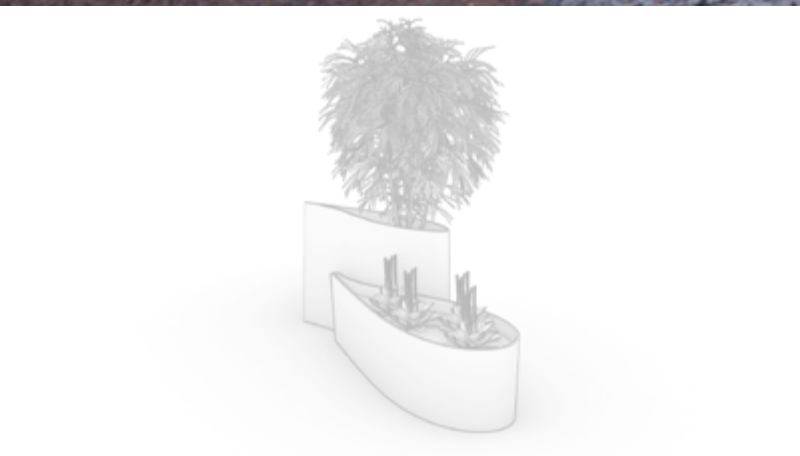
Zephyr Planter



Initial CAD Sketch

Initial CAD Sketch

Rendered Concept



Initial CAD Sketch



Initial CAD Sketch

Planter Series

Zephyr Planters

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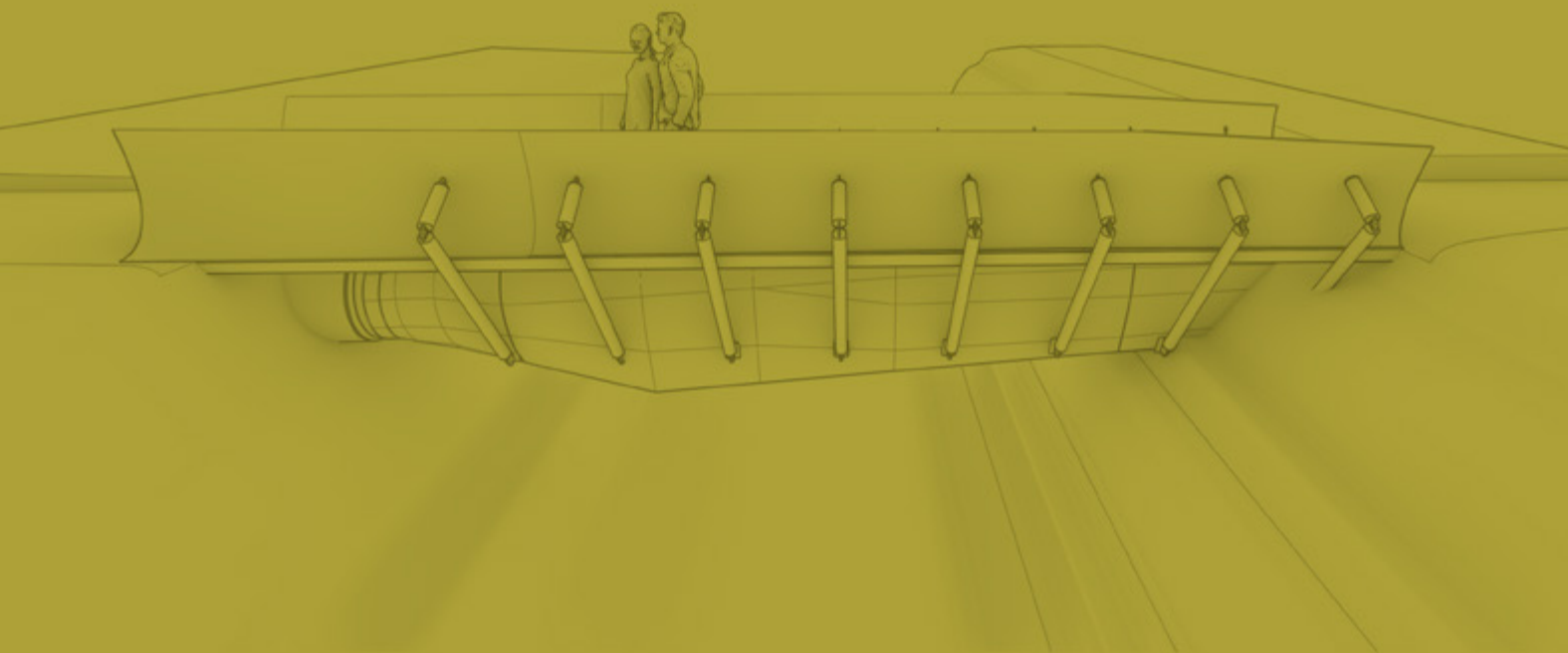


Our Bridges

Embark on a journey into sustainable engineering excellence with our Blade Bridges. Using discarded wind blades to substitute steel components, these structures offer more than mere crossings - they epitomize the fusion of innovative engineering and environmental stewardship.

Our bridge options feature both double and single-girder designs, incorporating blade material to replace conventional girders and a portion of the parapet. This innovative approach significantly reduces material requirements, enhancing efficiency and sustainability. We also provide low-profile bridges that cleverly conceal blade usage beneath the deck, as well as boardwalks and pontoons. With a significantly reduced CO2 footprint ranging from 20% to 50% lower than conventional bridges, our structures come complete with an Environmental Product Declaration.

Handrail design and decking option developed in conjunction with the client.



Bridge Design



Installation Photograph

Installation Photograph

Cork - Greenway



Rendered Concept

Blade Towers

Representing a fusion of engineering excellence and environmental stewardship, our blade towers utilise complete wind turbine blades to entirely replace the steel framework of telecoms or transmission towers.

This innovative approach results in blade towers with a 50% lower carbon footprint compared to conventional towers by replacing traditional steel components.



Our Promise to you

Our incredible team of experts in Bladebridge include a mix of highly experienced Bridge design engineers, with decades of experience.

We are in a unique position to work with you through the very early stages of brief development, through concept generation, visualisation and all the way through prototype development, testing, analysis and finally, to full project build, delivery and installation.

We work with expert project managers, manufacturing partners and civil engineers to ensure the development and deployment of every project we undertake, is delivered with exceptional quality.

For any small, medium or large scale bridge project you have in mind, please feel free to discuss the project with us. We work with many different makes and lengths of blades, so can offer a truly bespoke solution for your requirements.

BladeBridge

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