

# BEYOND NEUTRAL

2023 Annual Report



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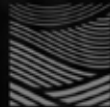
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## **Call to Action**

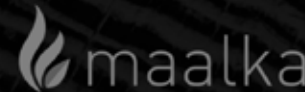
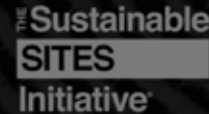
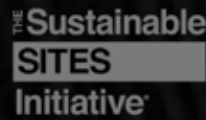
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American Society of Landscape Architects

BSLA



Many thanks to our sponsors, collaborators and supporters. Climate Positive Design continues because of you.

Climate Positive Design's mission is to **positively impact the climate and biodiversity crises** in the exterior built and natural environment, through advocacy, education and design.

## Why?

According to UN Habitat, the urban built environment is responsible for 75% of global greenhouse gas (GHG) emissions. To prevent irreversible climate impacts to humanity and the planet, we must take action now.

Not only do those responsible for the design, construction, and maintenance of the exterior built environment share the responsibility of reducing those emissions, but through nature-based solutions, we can actively take carbon dioxide out of the atmosphere. Through thoughtful design and measurement, projects strive to remove more carbon than they emit while providing ecological, social and economic co-benefits. They can become climate positive – simultaneously advancing resilient, biodiverse, and equitable communities while helping stay within the 1.5°C carbon budget.

## Who can contribute?

Landscape architects, engineers, designers, planners, related disciplines, organizations, municipalities, developers, academic institutions, students, property owners, and many more.

All Contributors that log project impacts are listed on the website [www.ClimatePositiveDesign.com](http://www.ClimatePositiveDesign.com)

## Leadership

Climate Positive Design (CPD) is a woman-owned non-governmental design and advocacy organization (NGO), founded in 2019 as part of a research initiative supported by the Landscape Architecture Foundation Fellowship for Innovation and Leadership. The initiative is grounded in three principles: Advocacy, Education and Design.

Pamela Conrad leads the initiative in collaboration with the following Advisory Partners and team members.



**Pamela Conrad**  
PLA, ASLA, LEED AP  
Founder, Executive Director

"I grew up on a farm in the mid-western United States. I loved everything about the trees, plants, animals, and water that was part of our everyday life. That is why I became a landscape architect. Embedded with a deep sense of responsibility for our environment, I am committed to doing everything I can to help us make a positive impact on climate change."

Over **40 individuals**  
 from **30+ organizations**  
 in **8 different countries**  
 for **ONE CAUSE**

## RESEARCH & DESIGN



Greg Barger  
CPD Technical Director



Eustacia Brossart  
CPD Research Director



Ed Mazria  
Architecture 2030



Vincent Martinez  
Architecture 2030



Erin McDade  
Architecture 2030



Jamie Jang  
Architecture 2030



Deanna Lynn  
ASLA



Chris Hardy  
ASLA/LAF/Sasaki



Amy Whitesides  
Harvard GSD



Prateek Jain  
Atelier Ten

## ADVISORY PARTNERS / COLLABORATORS



Torey Carter-Conneen  
ASLA



Katie Riddle  
ASLA



Jared Green  
ASLA



Vaughn Rinner  
ASLA



Sarah Fitzgerald  
ASLA



Diane Jones Allen  
ASLA



Jose Alminiana  
ASLA



Barbara Deutsch  
LAF



Stacy Smedley  
Building Transparency



Claudia Dobles Camargo  
Harvard Loeb / MIT



Lisa Richmond  
Architecture 2030



Bruno Marques  
IFLA



Kotchakorn Voraakhom  
IFLA



Colleen Mercer Clarke  
CSLA / IFLA



Claire Martin  
AILA/IFLA



Martin O'Dea  
AILA



Hope Parnham  
CSLA



Debi Denny  
ASCE



Lauren Alger  
ASCE / STV



Siddharth Narayan  
ASCE/East Carolina University

## TECHNOLOGY



Clay Teeter  
Maalka, Inc.



Wynne Teeter  
Maalka, Inc.



Tyler Maisano  
TheMayo



Phil Northcott  
C-Change Labs



Cameron Nimmo



Nick Zaytsev



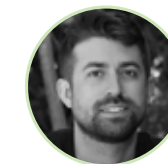
Lauren Peters Lague  
Catapult



Kira Gould  
Kira Gould CONNECT



Nahal Sohbaty  
Topophyla



Eric Ameson  
Topophyla

## COMMUNICATIONS



## Tools. Resources. Guidance.

The **Climate Positive Design Challenge** establishes carbon performance targets for projects to accomplish. The goal is to increase carbon sequestration and reduce and offset emissions within the site as soon as possible, taking more carbon dioxide (CO<sub>2</sub>) out of the atmosphere than emitted and becoming climate positive.

Although current “business as usual” practices show emissions greater than sequestration on site design projects, CPD’s tools, guidance and resources support the following:

### For all site design projects to:

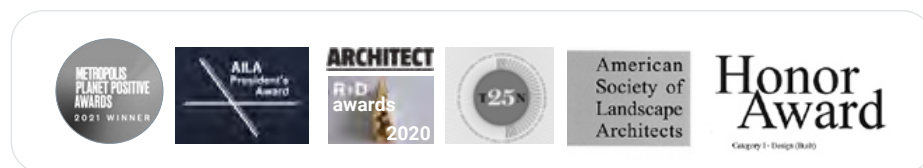
- **take more CO<sub>2</sub> out of the atmosphere than emitted by 2030** and
- **by 2050 to remove 1 gigaton of CO<sub>2</sub> beyond offset emissions** to support preventing the 1.5°C temperature increase and remaining 340GT carbon budget

Removing 1 gigaton from the atmosphere by 2050 would place this initiative in the top 80 Solutions listed in “Drawdown”, by Paul Hawken. “Drawdown” is a comprehensive plan that identifies strategies when combined together by 2050 would reduce GHG concentrations on an annual basis, thus reversing global warming.

### Targets are established as follows:

- **5 years to positive** for parks, residential, on-structure, mixed-use or campus developments
- **20 years to positive** for streetscapes or plazas

Targets were informed by case studies and a design toolkit that outlines strategies is provided on the website: [www.ClimatePositiveDesign.com](http://www.ClimatePositiveDesign.com)



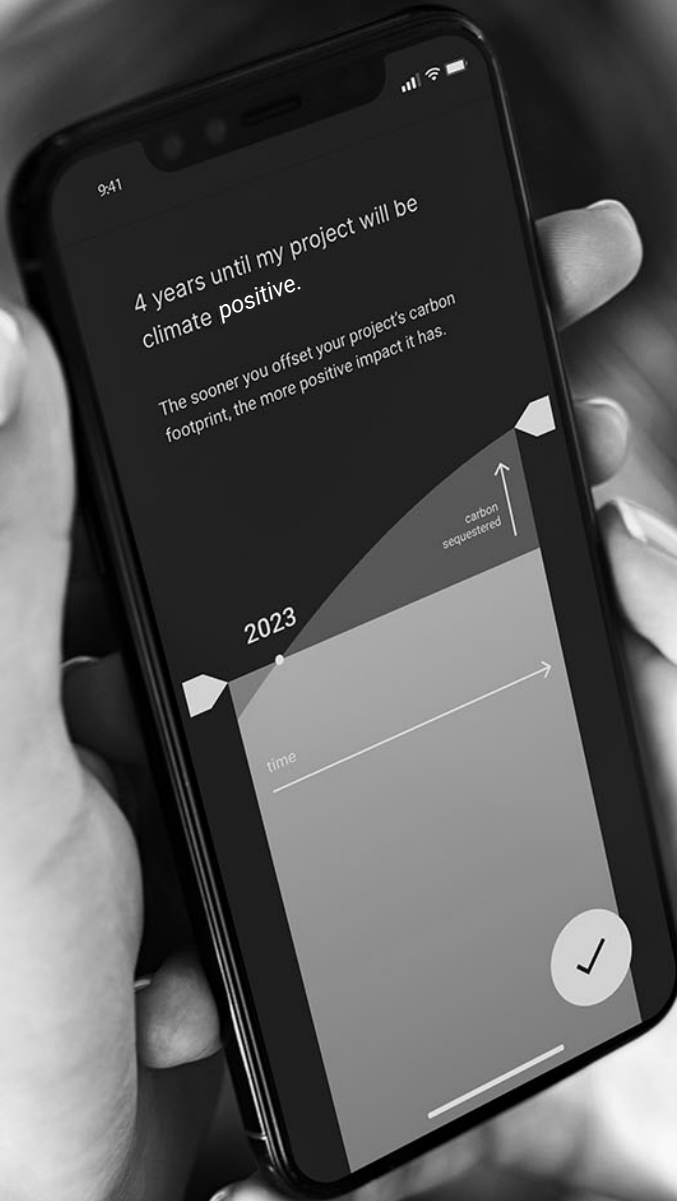
To meet the goals of the Challenge users log projects into the free, web-based application called the **Pathfinder**. By inputting basic material and plant quantities along with maintenance plans, it calculates embodied and operational carbon emissions along with carbon sequestration. The time it would take for the project to offset its emissions is calculated giving a “climate positive” score, and the Pathfinder provides guidance on ways to reduce emissions and increase sequestration to improve the score and meet the goals of the Challenge.

A scorecard is provided that can be shared with others and projects can be updated at any point in time.



The methodology and metrics have been evaluated to align with industry standards by the environmental consulting firm Atelier Ten. Sequestration data is derived from the US Forest Service and embodied carbon values are from the Athena Impact Estimator and Environmental Product Declarations (EPDs). A full report is available on the website.

Stay tuned for Pathfinder updates coming out in fall 2024.



9:41

4 years until my project will be climate positive.

The sooner you offset your project's carbon footprint, the more positive impact it has.

2023

carbon sequestered

time



path  
finder

## Impact

The **Climate Positive Design Challenge** was initiated on September 30, 2019, marking the conclusion of a month filled with the largest climate activism events in history. Most recently the statistics collected to date were shared in December 2023 at the United Nations Climate Conference (COP28) in Dubai, UAE.

Active tracking, recording, and analysis by a data analytics expert allows for understanding a comprehensive global impact of the initiative's impact on climate change – a contribution that has been relatively unknown to date.

The Advisory Partners review the data collected on an annual basis and advise on whether the targets should be modified based on how well contributors are meeting the goals.

Although the data collected in the early stages of any initiative carry the highest level of uncertainty possible, the statistics from the first four years provide a promising glimpse into the potential impact of this initiative. As recorded, the impact of the projects logged within the first four years show:

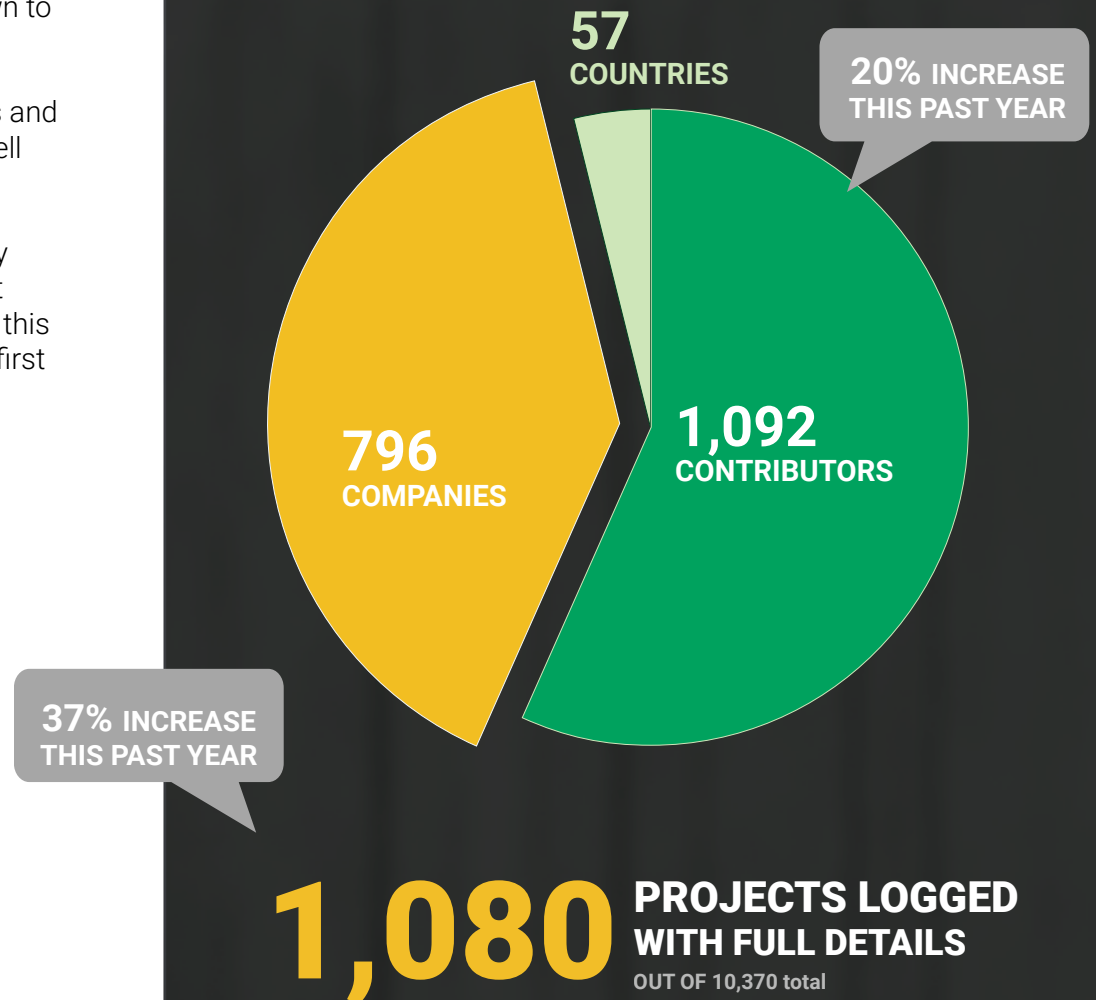
### Impact by 2040

1.8 million tonnes of CO<sub>2</sub>  
sequestered beyond offsetting project emissions

### Impact by 2050

5.1 million tonnes of CO<sub>2</sub>  
sequestered beyond offsetting project emissions

## OFFICIAL PROJECTS LOGGED IN PATHFINDER from the first four years ...





CUMULATIVE CARBON IMPACTS EQUAL

**1.9 million**  
TREES TO BE  
PLANTED



1.8 million tonnes of CO2 removed by 2040  
5.1 million tonnes of CO2 removed by 2050  
BEYOND EMISSIONS OFFSETS



CO2 SEQUESTRATION  
BEYOND EMISSIONS  
EQUIVALENT TO

> **391,739**  
**1,116,087**

> \*CARS REMOVED  
FROM THE ROAD BY

> **2040**  
**2050**



\* Based on 2020 EPA Average car emits 4.6 metric tons per year. US EPA 2020: <https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle>



## Advocacy

In 2023, planners, designers, and policy makers associated with the built environment around the world united to stand against climate change. At COP28 in Dubai, UAE, Architecture 2030, the International Federation of Landscape Architects (IFLA), the American Society of Landscape Architects (ASLA), American Society of Civil Engineers (ASCE) and associated organizations called upon governments to ramp up their 2030 emissions reduction targets, to limit planetary warming in line with the remaining global 1.5°C carbon budget. In particular, the official UNFCCC side event hosted by **ASLA focused on scaling low-carbon Nature-based solutions**, moderated by Lisa Richmond, Architecture 2030 Senior Fellow, including speakers Pamela Conrad, ASLA CEO Torey Carter-Conneen, ASCE's Siddharth Narayan, and IFLA's Kotchakorn Voraakhom. The group supported related and corresponding events at the International Union for the Conservation of Nature (IUCN) which included Loeb Fellow and former First Lady of Costa Rica, Claudia Dobles Camargo. Thailand Pavilion events focused on higher-education and workshops with UN Habitat brainstormed breaking barriers.

Supporting events in the lead-up to COP28 included New York Climate Week and corresponding Global ABC Workshop 2: Low Carbon Actions and Interdependencies and presentations to the International Living Futures Institute (ILFI), Institute for Sustainable Infrastructure (ISI), ASCE Annual Convention on "Systems Thinking", International Society of City and Regional Planners (ISOCARP), Carbon Leadership Forum (CLF), and many more.

Following years of collaboration amongst various individual groups, built environment industry leaders came together for the first time at one table on March 14th, 2023 in Seattle, Washington, to discuss a potential **coalition to accelerate and strategize how to rapidly reduce embodied carbon in the built environment**. The group, which includes Climate Positive Design as a member, is known as the **Embodied Carbon Harmonization and Optimization project (ECHO)**. Led by CLF, this initiative aims to standardize embodied carbon reporting and was introduced at the ASHRAE Decarbonization Conference in Washington D.C.







COP28 Official UN Side Event



ASHRAE Decarbonization Conference with ECHO



ASCE Conference



COP 28 IUCN Nature-Based Solutions Event



New York Climate Week + Global ABC Workshop



COP 28 UN Habitat Workshop



## Education and Awareness


While the underlying intent of the initiative is to reduce greenhouse gas emissions and increase carbon sequestration, **providing accessible educational information is the engine behind that impact.**

Data from academic studies or test case projects is not incorporated into the comprehensive carbon impact summary on pages 8 and 9. However, the statistics displayed on the right emphasize the collective effort in enhancing education and raising awareness worldwide.

### TOTAL PROJECTS INCLUDING ACADEMIC/STUDY



**10,370**  
PROJECTS LOGGED



**131 COUNTRIES**  
2,763 STUDENTS/UNIVERSITIES  
**2,955 COMPANIES**  
**5,718 CONTRIBUTORS**

### INCREASING AWARENESS



**247,994**  
PAGE VIEWS



**62,091**  
PEOPLE REACHED  
VIA WEB RESOURCES



**152**  
LECTURES

## COUNTRIES WITH MOST USE OF WEBSITE RESOURCES



**183** COUNTRIES REACHED  
OUT OF **195** IN THE WORLD



## Education / Courses

In 2023, Pamela Conrad completed the **Harvard Graduate School of Design Loeb Fellowship** residency year. The Loeb Fellowship is designed for leaders who come from around the world to the Harvard Graduate School of Design (GSD) with **one purpose: to make the world a better place for all.**

Following the fellowship, Conrad became a part-time faculty member at the Harvard Graduate School of Design, where **she instructs courses centered on climate solutions within both the built and natural environment.** In fall 2022, Pamela joined Amy Whitesides in teaching Climate by Design, a foundational course introducing the science, causes and potential strategies for designers to address. The semester included a half-day “Carbon Hackathon” where students fast-tracked a design, carbon footprint analysis and performance improvement challenge.

In support of informing professional credentials, Pamela led a day-long educational workshop with the Council for Landscape Architecture Registration Boards, addressing the question of, **“how should climate change be addressed in professional licensure or other credentials?”**

In addition, with the support of Build-Well multi-media, Climate Positive Design contributed to the [“How-To” video to decarbonize the exterior built environment](#) and the [Metropolis Outdoor Amenities Resource](#).







Climate by Design



Loeb Fellowship Cohort 2023



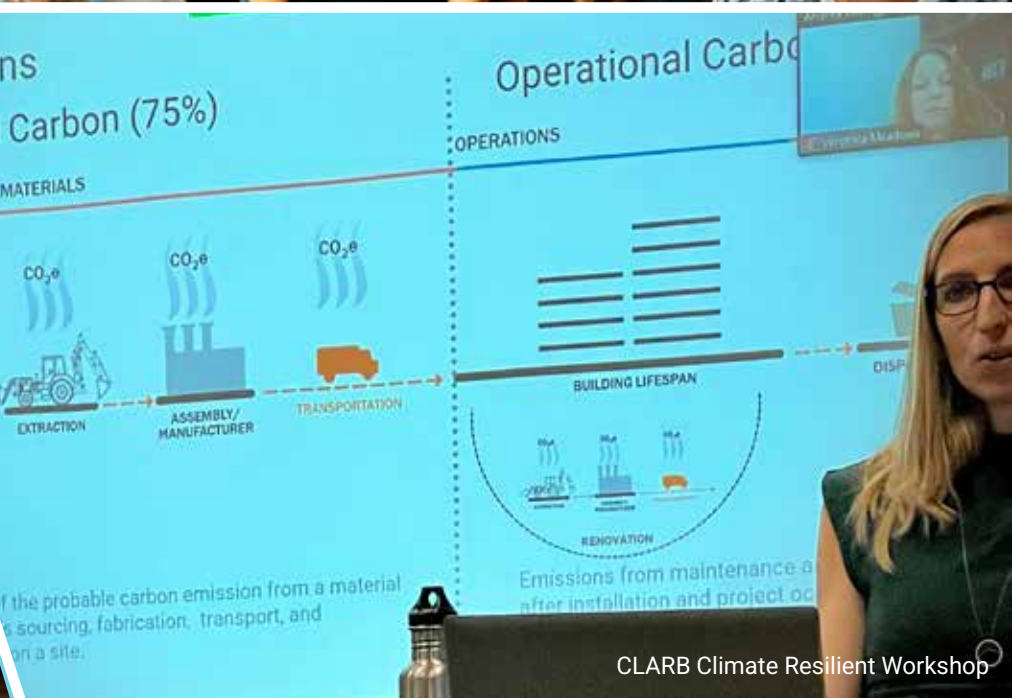
Build-Well Educational Video Filming



CLARB Climate Resilient Workshop



Loeb Fellowship 2023 Culmination



CLARB Climate Resilient Workshop



## Education / Resources

Based upon extensive research on the latest best practices and materials advancements, **Climate Positive Design and Architecture 2030** have **significantly expanded and updated the Climate Positive Design Toolkit and Carbon Smart Materials Palette**.

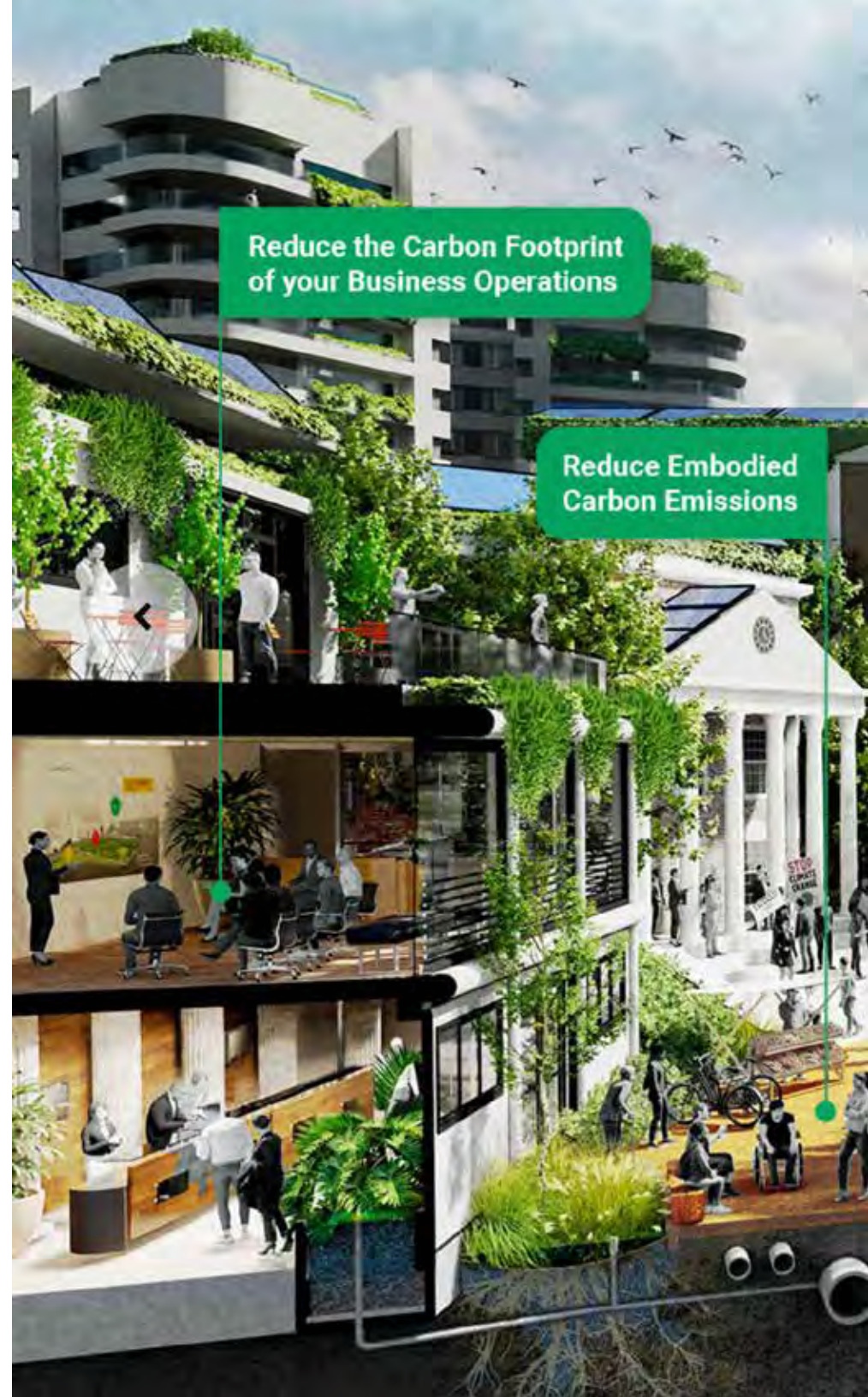
The CPD Toolkit now includes the latest research and recommendations on low-carbon materials, including concrete, steel, and alternative materials, as well as design strategies and best practices for landscape architecture, planning and engineering within four fronts of action: Carbon Drawdown, Climate Resilience, Equity and Advocacy. The Toolkit is available online as a downloadable PDF and interactive web graphic.

### Climate Positive Design Toolkit

[www.ClimatePositiveDesign.com/resources/design-toolkit/](http://www.ClimatePositiveDesign.com/resources/design-toolkit/)

### Carbon Smart Materials Palette

<https://materialspalette.org>





Reduce Operational Emissions  
+ Support Renewables

Design Walking, Biking + Public  
Transport-centric Communities

Increase Carbon Sequestration  
Through Nature-based Solutions

# Carbon Drawdown

Design Toolkit



LEARN MORE ▾

New Resources





## Design

Considering the growing global climate and biodiversity crises, the Sustainable Landscape Implementation Plan (SLIP) strategic planning exercise reevaluates and recalibrates Pennsylvania State University's (Penn State) expectations and operations to better meet these demands, while preserving and enhancing the aspects of the campus landscape that are valued most. The SLIP focuses and directs the **efforts towards a more holistic, ecological management approach with carbon improvements and increasing biodiversity at its core.**

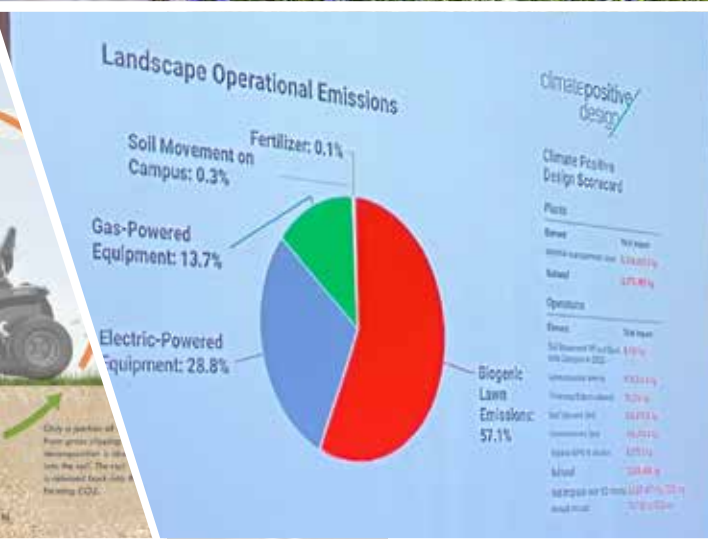
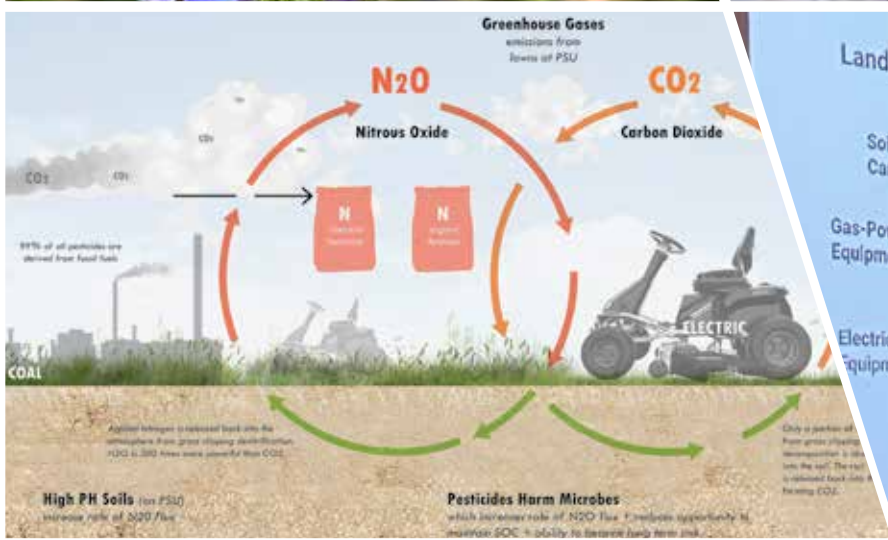
Climate Positive Design joined the Stimson Landscape Architecture team in collaboration with Phyto Studio to support Penn State in evaluating the current campus performance from a carbon and biodiversity perspective.

The effort began evaluation in close collaboration with the University's maintenance division, data aggregation and mapping, and the preliminary findings were shared with both university leadership and the student Eco-Action Committee. The results **showed significant potential for increasing biodiversity, carbon reductions and sequestration improvements through a series of implementable strategies over time that supports the University's Climate Action Plan goals.**

The project was approved with overwhelming support by the Steering Committee and students and awaits targeted implementation.









## 2023 CPD Challenge Project Top Contributors

Climate Positive Design is **proud to acknowledge the 2023 top contributors** whose work is highlighted on the following pages. Thank you to all that have supported the initiative to date.



ASPECT Studios



DF/



OCULUS



“The team was able to limit embodied carbon through several simple yet strategic design strategies: First and foremost, **maintaining nearly all of the site’s existing trees** was critical. **Preserving existing site features** like walls, stairs, and paving was also prioritized. Where possible, **natural materials** such as wood site furnishings and a decomposed granite bosque were also utilized and the **addition of new shade and accent trees** added even more sequestration capacity.”



CORPORATE CAMPUS  
LPA Design Studios  
San Francisco Bay area, California, USA



# Feature Project / Heritage Park

Firm: Damon Farber Landscape Architects  
 Location: Decorah, Iowa, USA  
 Client: Vesterheim, The Norwegian-American Museum & Heritage Center  
 Size: 2 acres (8,094 m<sup>2</sup>)  
 Team Members: Damon Farber Landscape Architects (Landscape Architecture/Prime), Erdman Engineering PC (Civil Engineering), Second Nature (General Contractor)



Jean Garbarini



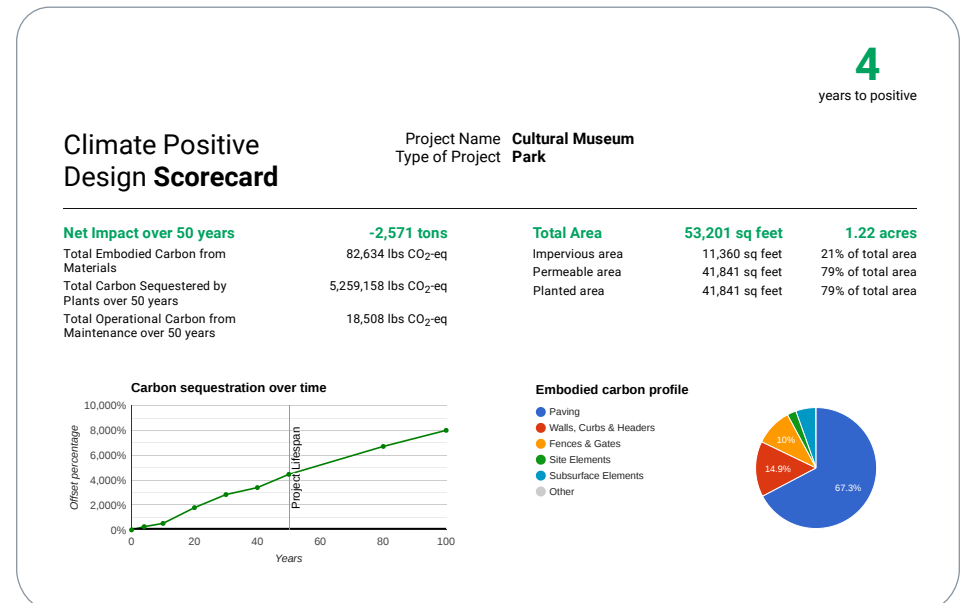
Jodi Refsland

## Project Approach

The Vesterheim National Norwegian-American Museum and Folk Art School in Decorah, Iowa preserves and explores the historic Norwegian-American immigration experience and is an important institution for Norwegian heritage preservation. The transformation of the nearly two-acre museum grounds into Heritage Park leveraged sustainable design to support cultural preservation by incorporating themes of early settlement lifestyle and resilient landscape design to create an interpretive and educational landscape for all. Using Pathfinder during multiple phases of design, we examined and iterated site solutions that informed material selections and planting strategies. The design embraces local limestone paving in lieu of concrete, completes extensive soil restoration, reduces traditional mown turf, and integrates diverse native plantings with intense tree installation. These strategies not only reduce embodied

carbon but also foster meaningful site experiences, allowing visitors to explore distinct garden rooms and connect with the regional driftless landscape early settlers encountered.

As one of our earliest projects to use the Pathfinder tool, we witnessed how contrary to popular belief in the profession, not all works by landscape architects are inherently sustainable. Being introspective about our profession and adopting the Climate Positive Design Challenge has inspired a focused pursuit of sustainable research efforts in our office. It has motivated us to continue exploring enhanced sustainable design strategies through intra-office shared knowledge and by engaging multi-disciplinary sustainability solutions illuminated by the Pathfinder tool. By encouraging landscape architects to freely test ideas and understand the fundamental impact of design, carbon impact analysis is moving the profession forward.





“The Norwegian-American Museum and Folk Art School design embraces **local limestone paving, reduces traditional mown turf, and integrates diverse native plantings with intense tree installation.** These strategies not only reduce embodied carbon but also foster meaningful site experiences, allowing visitors to connect with the landscape early Norwegian settlers encountered.”

 **6134**  
GALLONS  
STORED

**75%**

PERVIOUS SURFACE  
RESTORED SOILS ABSORB STORMWATER INTO THE  
SITE, SUPPORT A HEALTHY HYDROLOGIC CYCLE  
AND MITIGATE URBAN HEAT ISLAND EFFECT

**4**

**YEARS TO POSITIVE**



# Feature Project / Escapade Den

Firm	SaRedup Design Sdn Bhd
Location	Tanjong Bungah, Penang, Malaysia
Client	SaRedup
Size	.2 acres (845 m <sup>2</sup> )
Team Members	Awatif Ismail, Farizan Sulaiman



Awatif Ismail



Farizan Sulaiman

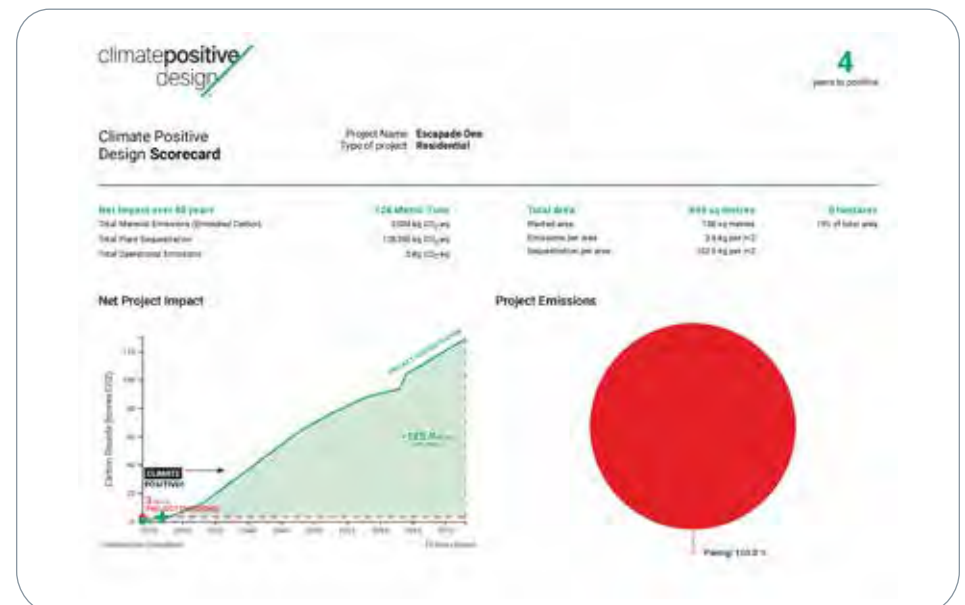
## Project Approach

The Escapade Den is a revamping and reshaping an existing 70's bungalow into a comfortable, sustainable and well being workplace in the urban neighborhood through 'Biophilia Pod' strategy. The core design principle is emphasized on biophilia, people and sustainable aspects with an intention to enhance urban biodiversity and mitigate the micro-climate change effect. The crucial challenge lies on how the design will respond to the environment and how to integrate the hot and humid tropical climate into the biophilic design strategy and make it functionalized.

We needed an analysis tool that can process and measure the design impact on the environment starting from beginning of the design process regardless the size of the project. And we figured out that the Climate Positive Design tool is one of its kind.

The Pathfinder tool would analyze pragmatically and measure our design strategy with optimum planting criteria and hardscape materials. The scorecard indicates a result of the design impact on the environment as a guidance towards the carbon sequestration and the required time frame to achieve the climate positive goal. The advice and suggestions in CPD are helpful to optimize and enhance the quality of the design in achieving the desired climate positive impact.

The most important thing that we learned through the CPD process is regardless the size of the project, there are possibilities to lock, sequester carbon and mitigate climate change effects. And we believe as a responsible landscape architect, we should design in harmony with the environment.





“The core design principles emphasize **biophilia, people and sustainable aspects** with an intention to **enhance urban biodiversity and mitigate the micro-climate change effects.**”

#### DESIGN STRATEGY

*Tropical Rhapsody's implementation strategy includes the Biophilic, People, and Sustainability approaches.*

#### BIOPHILIC APPROACH

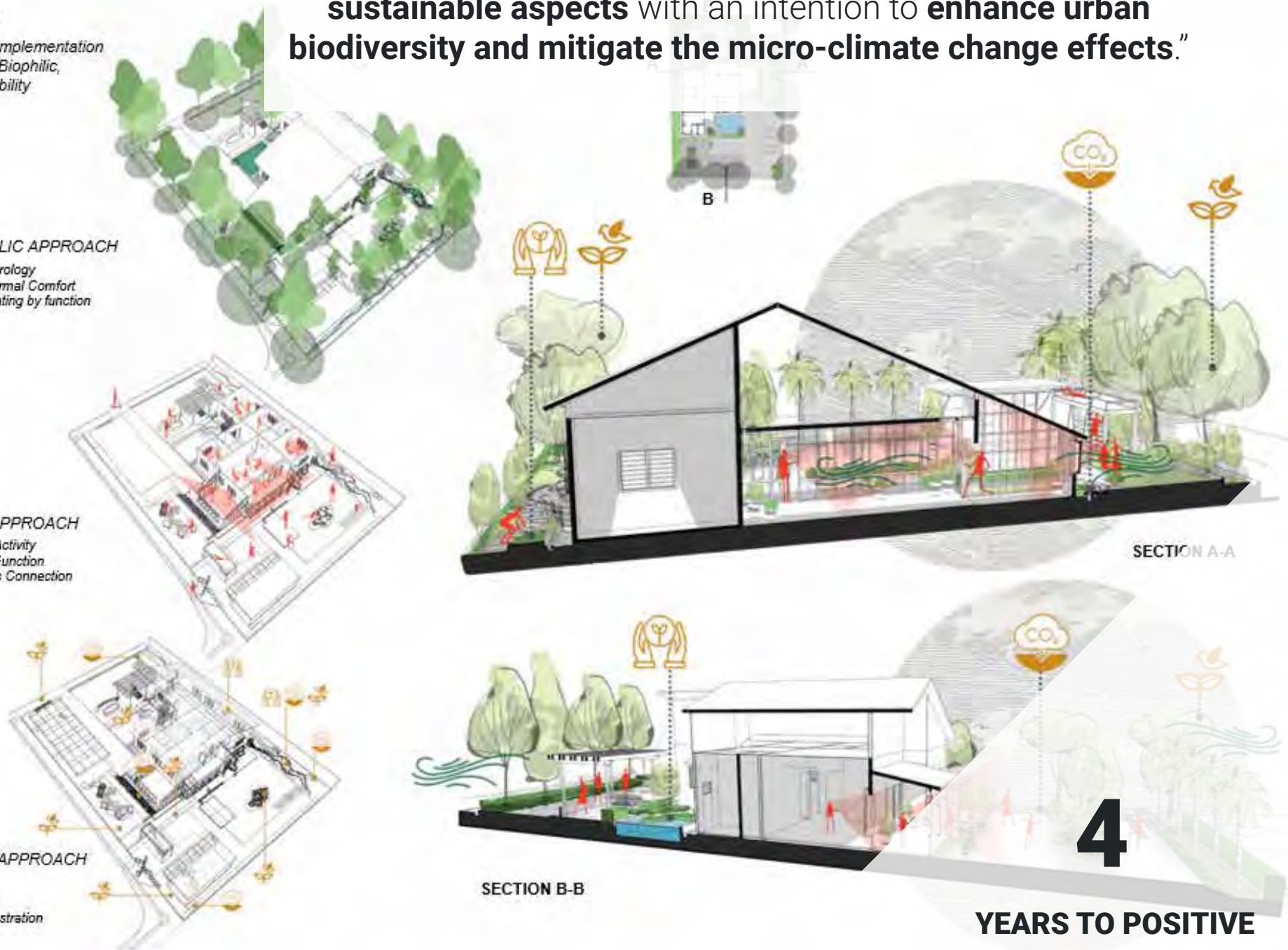
1. Hydrology
2. Thermal Comfort
3. Planting by function

#### PEOPLE APPROACH

1. Space Activity
2. Space Function
3. Biophilic Connection

#### SUSTAINABLE APPROACH

1. Biodiversity
2. Food Security
3. Carbon Sequestration



## Feature Project / ECOPOD

Firm	eCache
Location	Hyderabad, India
Client	Organo Eco-Habitats
Size	13.6 acres (55,037 m <sup>2</sup> )
Team Members	Architecture: Ramya, Hemamalini, Abinaya, Nivedhitha, Veronica Dhananjay, Amuktamalyada & Krishna Kasi. Landscape Architecture: Manju Rajeev Kanchan. Transport & Infrastructure Planning: Sandeep. Building Engineering Management: Darshit Mehta & Arun



Manju Rajeev Kanchan

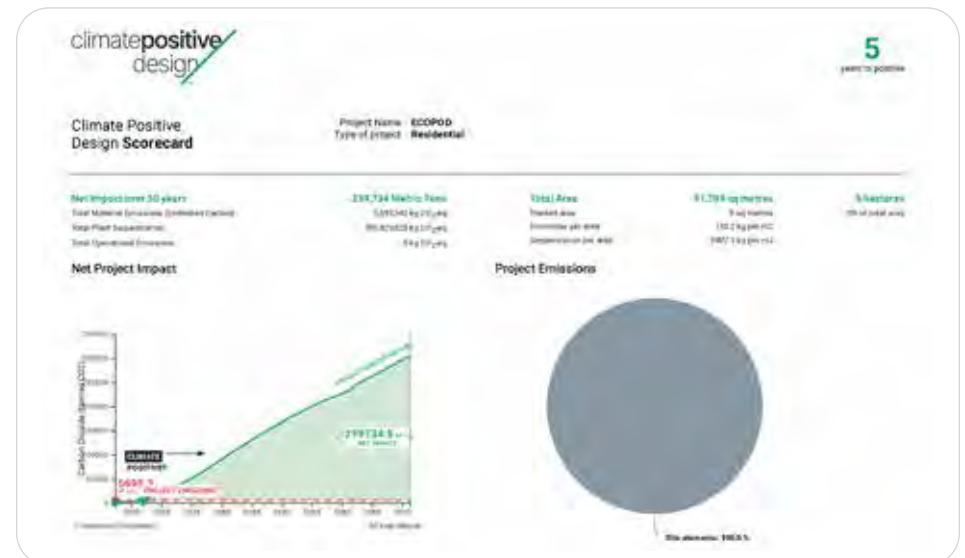
### Project Approach

EcoPod is a multi-family housing community driven by principles such as bio-conservation, reviving culture, and bringing people together. Team eCache reflects an integrated design approach with an objective to design a net-zero-energy multi-family housing consisting of 104 affordable dwelling units.


The project is aimed at making an affordable model of such a rural lifestyle, by combining the merits of co-living and collective farming. Our project partners and our team envisage offering a rural lifestyle to the environmentally-conscious millennial families “to tread lightly on this Earth”. Based on Sapta-Pathas or seven strands of sustainability - in terms of energy, food, water, shelter, earth, air, and people, Ecopod offers a lifestyle that is sustainable both socially and environmentally.

Through collective farming, the residents get together with local farmers to grow food in their own farm patches and share the bounty of earth with birds, bees, and animals. While the local farmers are employed for helping with farming and raising cows among other rural activities on the site, they are also exposed to a host of organic technologies. This helps support local produce and economically supplement the surrounding village dwellers.

EcoPod is envisioned as an eco-sensitive venture with a low adverse environmental impact, which is self-sustaining through its reduced dependence on public infrastructure for amenities such as water, energy, and waste management. EcoPod is complemented using systems such as rooftop panels, rainwater harvesting systems, reed-bed filtration, and on-site waste management, that result in net-zero energy, water, and waste. Furthermore, each house also has an individual farm patch that could be used for producing edible crops. This is a step towards self-sustenance and reduces dependence on fast depleting resources.







“The design from concept to equipment selection **focused on an eco-sensitive carbon footprint.** Using building materials like agocrete and landscape vegetation strategies leads to offsetting itself in 5 years.”

**5**

**YEARS TO POSITIVE**



# Feature Project / University of Newcastle Honeysuckle Temporary Landscape

Firm: OCULUS  
 Location: Newcastle, New South Wales, Australia  
 Client: University of Newcastle  
 Team: Simon Bond, Aidan Smith, Roger Jasprizza  
 Size: 1.56 acres (6,300 m<sup>2</sup>)



Simon Bond



Aidan Smith



Roger Jasprizza

The Pathfinder tool allowed us to iteratively test the design. The largest impact we were able to make in reducing emissions was through minimizing the use of concrete as a paving surface and instead utilizing stabilized crushed stone for pathways. Equally to aid carbon sequestration and provide the co-benefit of local habitat and biodiversity, a large, fenced portion of the project was planted out with a native meadow seed mix.

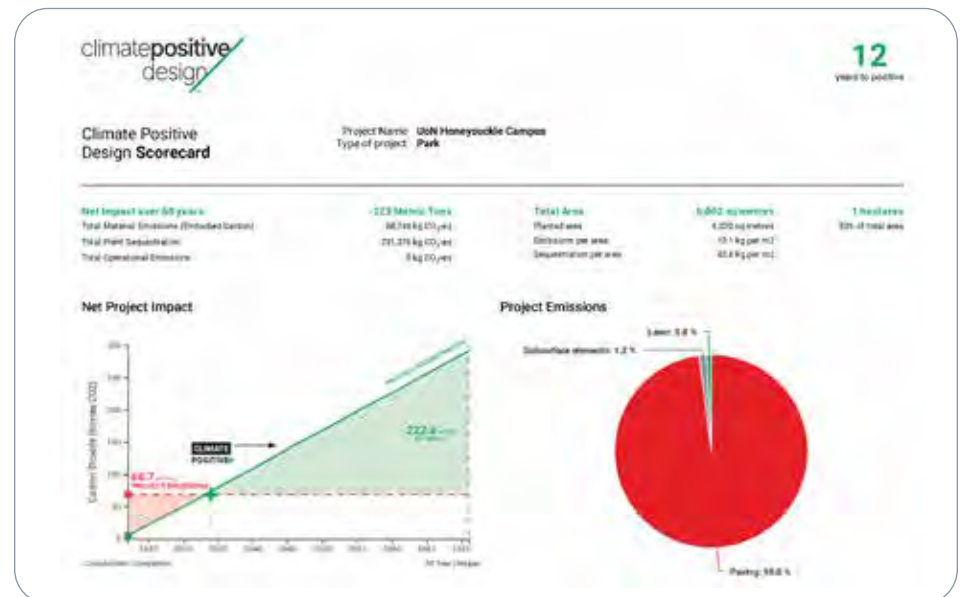
Challenges for the project included the inability to plant a meaningful number of larger trees due to existing site contamination. The briefed requirement for an open, flexible lawn space also impacted the carbon outcome of the project, acting as a net carbon emitter and reducing the potential for extensive planting.

## Project Approach

This temporary project delivers a green, engaging, and flexible space for students and the local community adjacent to a new university building within the University of Newcastle’s highly urban Honeysuckle Campus.

From the outset there was a strong desire from both the University and the design team to minimize the carbon impact of the project. Given its temporary nature designing for future reuse became a key driver of the design. Trees were planted in moveable raised planters so that they could be easily transplanted within future works, and furniture was designed to be easily removed and reused.

Recycled timber was used for all planters, seating and tables, and a repurposed student art installation was given new life as a series of shelters within the small park, all of which greatly assisted in keeping carbon emissions down.





**“Recycled timber was used** for all planters, seating and tables, and **a repurposed student art installation was given new** life as a series of shelters within the small park, all of which greatly assisted in keeping carbon emissions down.”



**12**

**YEARS TO POSITIVE**



# Feature Project / Coachman Park

Firm: Stantec  
 Location: Clearwater, Florida, USA  
 Client: City of Clearwater, Florida  
 Team: Claudia Adomavicius, Zaid Dabash, Kyle Steele, Greg Meyer, Craig Walker, Rob Terry, Ariel Hadley  
 Size: 24 acres (97,125 m<sup>2</sup>)



Claudia Adomavicius



Zaid Dabash



Kyle Steele



Greg Meyer



Craig Walker



Rob Terry



Ariel Hadley

## Project Approach


Coachman Park is a 24-acre high-amenity park and plaza built in downtown Clearwater. The park was previously a surface parking lot with a small park and outdoor venue. The redesign of Coachman Park includes expansive parks, an outdoor amphitheater, an estuary, a promenade, and outdoor spaces that will re-engage and reconnect with the local community. The design approach combines sustainable design principles and our specialty in experiential design.

Our team used Pathfinder to assess the carbon impact of the design. Through the analysis, we identified paving as the largest carbon contributor to the project. Our team minimized concrete paving where possible and utilized crushed shells and other pervious materials. To counteract the large amount of concrete paving, the design team included trees and planted areas, including a smart selection of trees and shrubs that will sequester more carbon. In addition, many existing trees were kept in place to minimize carbon emissions associated with tree removal. Our team is proud to share that Coachman Park will achieve net-zero carbon emissions in 20 years, meeting the target for plazas, and will demonstrate a positive climate impact over a 50-year lifespan.

Stantec is committed to delivering design solutions that make meaningful progress toward carbon neutral landscapes and have a positive impact on the environment and climate. Utilizing Pathfinder is a great asset for our team to monitor and quantify the carbon impacts of our designs to make better sustainable design decisions.







**“Our team minimized concrete paving where possible and utilized crushed shells and other pervious materials. To counteract the large amount of concrete paving, the design team included trees and planted areas, including a smart selection of trees and shrubs that will sequester more carbon.”**

**20**

**YEARS TO POSITIVE**



# Feature Project / Corporate Campus

Firm: LPA Design Studios  
 Location: San Francisco Bay area, California, USA  
 Project Type: Corporate  
 Size: 1.2 acres (4,856 m<sup>2</sup>)  
 Project Team:



Naomi Nishimoto



Andrew Wickham



Rich Bienvenu

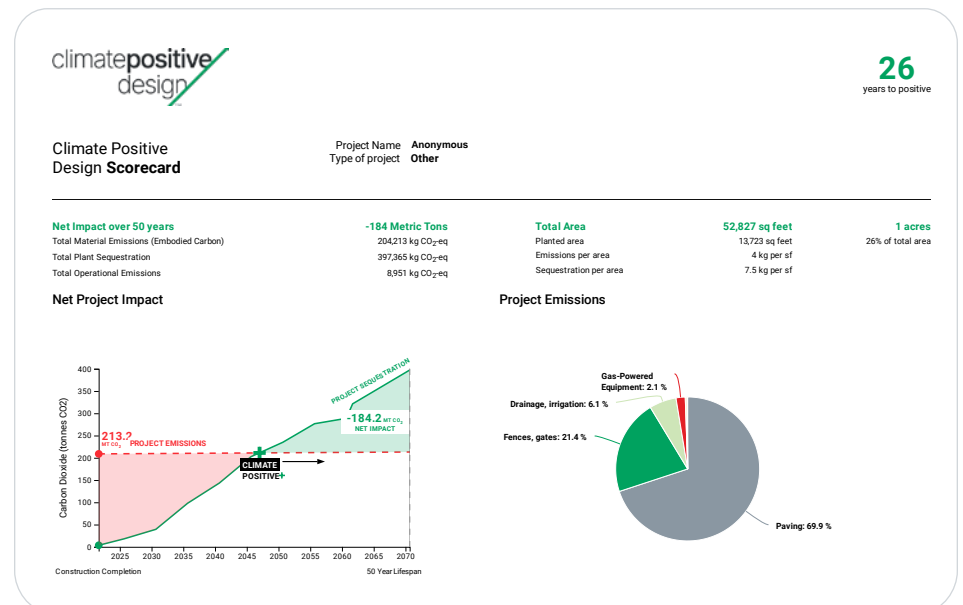
## Project Approach

After conceptual design and during construction, our client requested LPA to conduct a carbon analysis on their corporate repositioning project located in the San Francisco, CA Bay Area. The team was able to limit embodied carbon through several simple yet strategic design strategies: by retaining much of the existing site features and making small (but high-impact) interventions in key areas to improve exterior programming and access, indoor/outdoor connectivity, wayfinding, and overall functionality to attract new tenants while increase leasing opportunities.

First and foremost, maintaining nearly all of the site's existing trees was critical. The small office complex has over 100 trees of varying size and age and were important to maintaining the unique character of the property and existing carbon sink. The addition of new shade and accent trees added even more sequestration capacity. Preserving existing site features like walls, stairs, and paving was

also prioritized. This allowed the design team to limit demolition and replacement of still functional, carbon-heavy site materials. Where possible, natural materials such as wood site furnishings and a decomposed granite bosque were also utilized to limit carbon footprint.

Ultimately, this project will be carbon positive in 26 years, due in large part to the large number of trees for the scale of the site. Through the process, the design team found that while trees are important in reducing the total carbon bill, limiting embodied carbon in the first place is a critical practice in balancing carbon on the site.







“Through the process, the design team found that while trees are important in reducing the total carbon bill, **limiting embodied carbon in the first place is a critical practice in balancing carbon on the site.**”

**26**

**YEARS TO POSITIVE**



# Feature Project / University of Tasmania Cradle Coast Campus

Firm: ASPECT Studios  
 Location: Burnie, Tasmania, Australia  
 Client/Team: Landscape Design Team: Nirvana Kadric; Heather Stevenson; Warwick Savvas  
 Architect: John Wardle Architects; Philp Lighton Architects. Civil Engineer: Johnstone McGee & Gandy. Green Roof Provider: Fytogreen  
 Size: 11.5 acres (46,724 m<sup>2</sup>)



Nirvana Kadric



Heather Stevenson



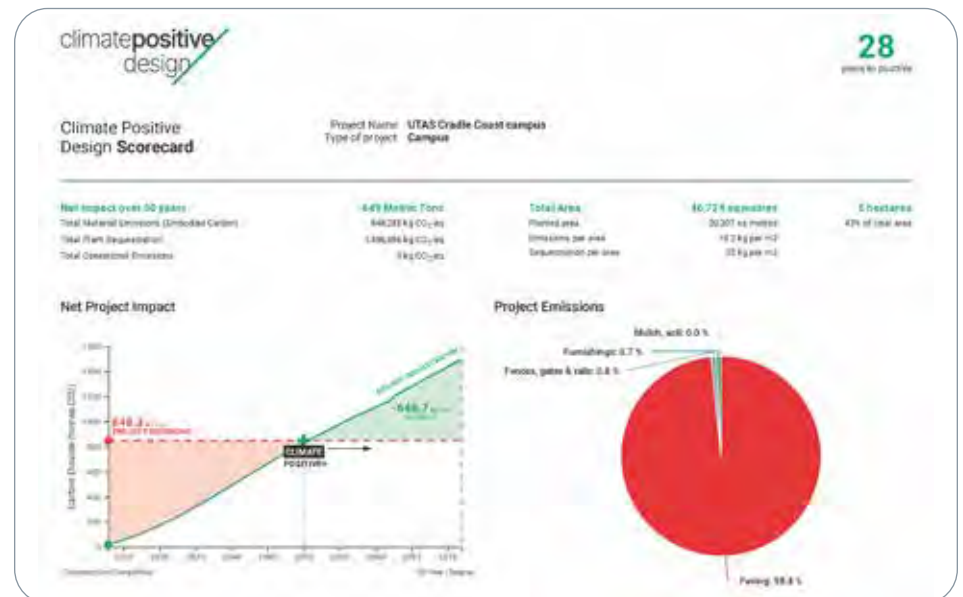
Warwick Savvas

## Project Approach

Part of the University of Tasmania's Northern Transformation Project, ASPECT Studios were engaged to undertake landscape services for Burnie's the new Cradle Coast campus. The design concept responded to the vision of encouraging the intersect between students, industry and the community with sensitivity to the existing coastal environment and penguin colony. A landscape approach focused on rehabilitating the existing landscape, increasing penguin visitation, connectivity between Campus and coast, and celebrating the historic rail character. A dunal planting approach addressed the functional requirements of the penguin habitat, rail corridor and campus surrounds areas. In collaboration

with Friends of the Burnie Penguins, habitat species were selected based on re-populating the local penguin colony, improving habitat and maximizing foreshore vegetation, whilst Campus species selection provides wind mitigation and human comfort around the building.

A new pedestrian path network and stylized berm forms connect the Campus to the coast, frame views and provide protection from the coastal elements. Proposed boardwalk and viewing platforms incorporate penguin tunnels into habitat areas, re-used rail timber seats and rail steel edging, referencing the site's rail heritage. In collaboration with Riawunna Centre, the Campus showcases a fire-pit centered gathering space, acknowledging the Lutruwita nation. A protected central courtyard provides student gathering opportunities, utilizing a luxuriant plant palette responding to the tempered environment provided. Above, an extensive green roof utilities Indigenous ground covers and low shrub performance that could be directly integrated into the design. Clear recommendations, analysis, charts and graphics aided the process.





“Proposed boardwalk and viewing platforms incorporate penguin tunnels into habitat areas, **re-used rail timber seats and rail steel edging**, referencing the site’s rail heritage. In collaboration with Riawunna Centre, the Campus showcases a fire-pit centered gathering space, **acknowledging the Lutrurwita nation.**”



28

YEARS TO POSITIVE



# Feature Project / Kültürpark

**Organization** Izmir Democracy University  
**Location** Konak, Izmir, Türkiye  
**Size** 104 acres (421,000 m<sup>2</sup>)  
**Client/Team** Assoc. Prof. Dr. Nurdan Erdoğan, Ilgaz Ekşi (MSc), Ayşenur Kaylı (MSc), Betül Çavdar (Landscape Architect - Izmir Metropolitan Municipality, PhD Candidate - Ege University Department of Landscape Architecture, Executive Board Member - UCTEA Chamber of Landscape Architects Izmir Branch)



Nurdan Erdoğan



Ilgaz Ekşi



Ayşenur Kaylı



Betül Çavdar

## Project Approach

Izmir's largest urban park, Kültürpark, holds great importance due to its central location and the social-ecological benefits it offers. However, it is currently at risk of becoming inactive due to recent changes in its functions. In this context, there has been a need for landscape performance tools in the development and evaluation of design strategies to enhance the park's ecological benefits. The Pathfinder tool allows for the estimation of carbon footprint and time to achieve carbon neutrality for landscape projects. According to the analyses revealing the current state of the park, it performs at a level lower than 80% of similar projects and requires 39 years

to achieve carbon neutrality. Improvement scenarios, including material and vegetative changes to enhance the park's current ecological benefits, indicate that the transformation of vacant areas can lead to climate positivity in 29 years, conversion of water surfaces into ecological wetlands in 35 years, impervious surface alterations in 21 years, and transformation of hangars into green areas in 30 years. Observations suggest that the implementation of combined design strategies can reduce the time to achieve carbon neutrality to as little as 12 years.

We have recognized that reducing artificial surfaces and transitioning to ecological maintenance measures are effective approaches in terms of carbon budget. Creating awareness about the use of landscape performance tools for the renewal of existing areas from a sustainability perspective is something we take pride in, not only for new design projects but also for the renewal of existing spaces.





An aerial photograph of a city, showing a dense grid of buildings with reddish-brown roofs. In the center, there is a large, lush green park area with various structures, including a circular arena, a large open field, and several smaller buildings. The park is surrounded by more urban development. The overall scene is a mix of urban density and green space.

“We have recognized that **reducing artificial surfaces and transitioning to ecological maintenance measures are effective approaches** in terms of carbon budget. Creating awareness about the use of landscape performance tools for the renewal of existing areas from a sustainability perspective is something we take pride in.”

**39**

**YEARS TO POSITIVE**



# Feature Project / 1925 Victoria Park

Firm: Janet Rosenberg & Studio Inc.  
 Location: Toronto, Ontario, Canada  
 Team Members: Wayne Swanton, OALA, Principal-In-Charge.  
 Nicholas Gosselin, MLA – Senior Project Leader.  
 Architect (+ Renders): Serotiny Group - PARTISANS  
 Client: Well Grounded Real Estate  
 Size: 1.2 acres (4,910 m<sup>2</sup>)

One of the largest challenges for this project has been the municipal requirement for standard concrete sidewalks and lawn boulevards. With frontage on three city streets, initial testing of the project in Pathfinder revealed a Scorecard with 246 years to positive. By implementing strategic changes, including the conversion of the boulevard lawn to meadow, and the selection of low-carbon pavers on private property, we were able to reduce the years to positive to 72, a roughly 70% reduction.

It reinforces the need to work with municipalities to gain broader acceptance of more sustainable paving materials, such as low-carbon concrete, within publicly owned land. The years to positive for this project could be further lowered if this was the case.



Wayne Swanton

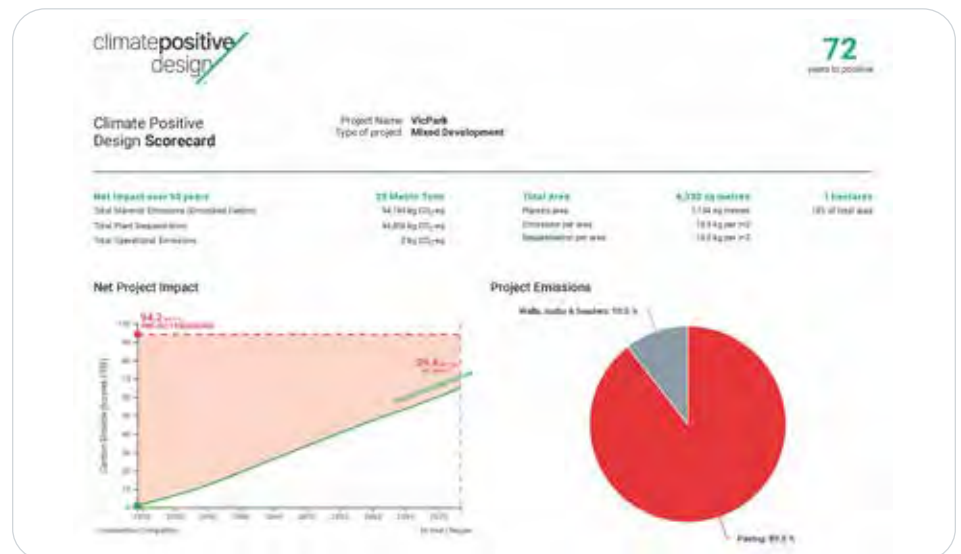


Nicholas Gosselin

## Project Approach

1925 Victoria Park will be the first privately developed Tier 4 (or net-zero) building under the City of Toronto’s Green Standard (TGS). It features prefabricated wood construction, an internal landscaped courtyard with exterior corridors, and natural ventilation. The landscape design supports this highly sustainable approach by maximizing passive strategies across the whole site.

The large interior courtyard is designed to receive maximum natural daylight and incorporates softscape planting to maximize rainwater retention. An innovative system of planters and vine armatures create a “green mesh” by extending planting vertically to residents’ front doors while providing solar cooling and ecological diversity. The building’s intensive green roofs include native planting that support biodiversity, pollinators, water retention, and help cool in summer. An increased tree canopy along the outside of the building helps to enhance the resiliency of the streetscape.





“By implementing strategic changes, including the conversion of the boulevard lawn to meadow, and the selection of low-carbon pavers on private property, we were able to reduce the years to positive to 72, a roughly 70% reduction. **It reinforces the need to work with municipalities to gain broader acceptance of more sustainable paving materials, such as low-carbon concrete, within publicly owned land.**”



**72**

**YEARS TO POSITIVE**



## Statistics

### PROJECT QUANTITY FROM 2019-2023

- Total projects that submitted full details = 1,080

### IMPACTS BY 2050

- Total embodied emissions = 4.4 million tonnes
- Total operational emissions = 776,000 tonnes
- Total emissions = 5.17 million tonnes
- Total sequestration = 10.3 million tonnes
- Total net = 5.13 million tonnes
- **Sequester 2x more carbon than emitted by 2050**

### IMPACTS BY 2040

- Total embodied emissions = 4.4 million tonnes
- Total operational emissions = 528,000 tonnes
- Total emissions = 4.9 million tonnes
- Total sequestration = 6.7 million tonnes
- Total net = 1.8 million tonnes
- **Sequester 1.4x more carbon than emitted by 2040**

### CHALLENGE PERFORMANCE

- Median years to positive (YTP) for all projects = 20 years
- Median YTP for Parks = 17.5 years
- Median YTP for Plazas/Streets = 61.5 years

## Trends from 2023



**37%** MORE PROJECTS  
logged with full details from 2022



**2x** INCREASE FROM 2022 IN  
**tree planting**



**20** YEARS TO POSITIVE  
median for professional projects



**20%** INCREASE IN  
professional contributors

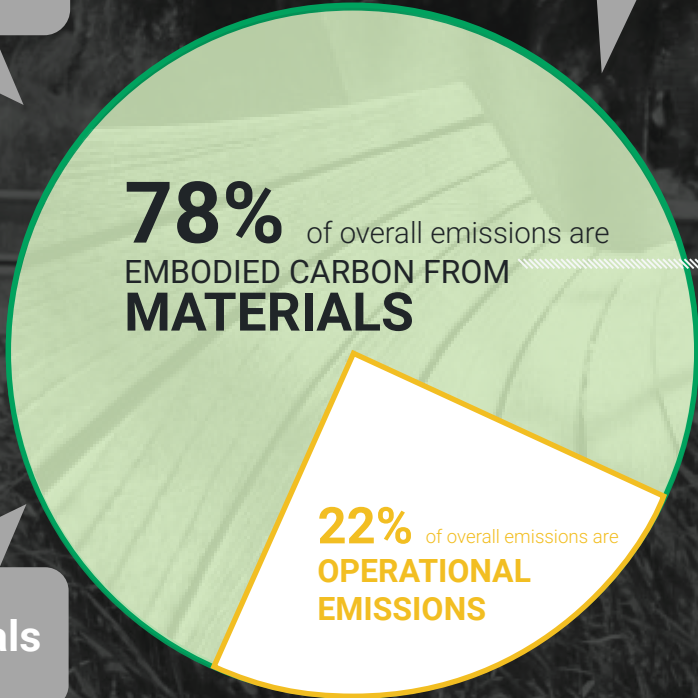


# Project Performance and Actions

Maximize cement substitutions

We need EPDs

Use less



TARGET THIS

Use local materials

Maximize recycled content and reuse

**24% of projects**  
ARE MEETING CHALLENGE TARGETS



# Support

To advance the resources developed to date, CPD is seeking donations to support the following in 2024:

## 1. RESEARCH

- Expand research for metric setting knowledge of co-benefits including water conservation, biodiversity, equity, community health and resilience
- Collect EPDs to expand embodied carbon of materials and operations

## 2. TOOLS

- Pathfinder Advancements
  - Incorporate more materials, plants and operations
  - Expand to include co-benefits such as biodiversity, equity, water conservation, community health and resilience
  - Expand products and Environmental Product Declarations
  - Integrate with 3D multi-disciplinary tools and integrate/align with other tools in related disciplines

## 3. RESOURCES/GUIDANCE

- Evaluate Climate Positive Design Challenge Industry Impact Data
- Develop Climate and Biodiversity Positive Commitment program
- Support the expansion of the EC3 EPD Library

## 4. EDUCATION/COMMUNICATIONS

- Give lectures and workshops at universities, schools, conferences, firms and organizations
- Create educational and thought leadership editorials and media
- Collaborate with manufacturers and interdisciplinary organizations
- Integrate with rating programs and code standards







**To donate online, visit the GoFundMe page:**

<https://www.gofundme.com/f/climate-positive-design-initiative>

Or, to make a **tax deductible contribution**, donations can be made out to CPD's 501(c)3 fiscal sponsor: **2030, Inc. / Architecture 2030**. Please note **Climate Positive Design** in the memo line.

**2030, Inc. /Architecture 2030**

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