EXPLORING SUSTAINABLE DESIGN THROUGH RECYCLE CORK. A CASE STUDY ON A CIRCULAR DESIGN AND MATERIAL REUSE.

Marina Peres*[a]

a American University of Sharjah, College of Architecture, Art and Design (AUS - CAAD), United Arab Emirates
* mperes@aus.edu, mperes1@gmail.com

DOI: 10.63442/DGTE3516

EXPLORING SUSTAINABLE DESIGN THROUGH RECYCLE CORK. A CASE STUDY ON A CIRCULAR DESIGN AND MATERIAL REUSE.

Marina Peres*[a]

a American University of Sharjah, College of Architecture, Art and Design (AUS - CAAD, United Arab Emirates
* mperes@aus.edu, mperes1@gmail.com

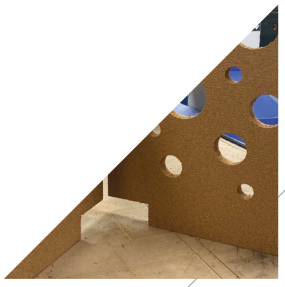
P/REFERENCES OF DESIGN
CUMULUS BUDAPEST 2024 15-17 MAY 2024
BRIDGING DESIGN AND ECONOMICS

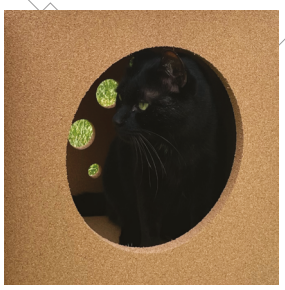
WE DISPOSE OF
100 BILLION TONNES
OF MATERIAL ANNUALLY
ONLY 9% ARE RECYCLED
EACH TONNE DISCARDED
RESULTS FROM DESIGN DECISIONS

It's essential to recognize that sustainability isn't just a responsibility - it's an opportunity for positive change. By rethinking our design processes and consumption habits, we can collectively move towards a more regenerative and equitable future

As designers, every choice we make - from selecting materials to conceptualizing products - has an impact. Our decisions influence not only the aesthetics and functionality of the final product but also its environmental footprint. We can minimize waste and contribute to a more sustainable future. Our contributions to causes such as addressing the issue of stray cats extend beyond the final products we create.

The products we choose to buy and use reflect our values and priorities. By supporting companies that prioritize sustainability and ethical practices, we send a clear message to the market about the kind of world we want to live in. Whether it's opting for products made from recycled materials, supporting brands that minimize packaging waste, or choosing reusable alternatives, our choices matter.





ABSTRACT

This study focuses on the innovative use of recycled cork as a primary building material, emphasizing its potential to mitigate deforestation while promoting sustainable and circular design principles.

This research aims to explore the unique properties of cork and showcase its potential as a renewable resource for design applications in urban context. Cork is recognized as an ecological alternative as its production is highly sustainable. Cork is harvested from the cork oak tree, which continues to grow and regenerate after extraction promoting the continued health of cork oak forests. This research investigate the feasibility of utilizing cork composites (recycled cork from other existing products) to design a sustainable and circular modular shelter tailored for feral or stray cats. This innovative urban product aims to inspire transformative change about the importance of our social responsibility towards other species, especially in the context of urban environments.

Research objectives

1 | Explore the unique properties of cork and showcase its potential as a renewable resource for design applications to improve feral or stray cats community life;
2 | Investigate the feasibility and durability of utilizing cork composites in urban and modular product solutions ;
3 | Explore the use of cork composites within circular design and inspire transformative change regarding sustainability and circular economy principles.

Methodology

Qualitative and exploratory approach to ensure that the shelter design addresses the needs effectively and ot understand the context in which the shelter will be used, considering factors such as climate and urban environment. Insights were collected through ethnographic observation to inform refinements and improvements to the shelter design to better meet the needs of both the cats and the caretakers, and considering the ethical considerations related to animal welfare.

Research Process

Design concept development considering, shape, durability, insulation, comfort, and adaptability to urban environment. Several iterations were done to evaluate the feasibility of the design concept by considering factors such as cost, materials, manufacturing processes, and scalability. CNC prototyping was used to create high fidelity prototype, ensuring consistent quality. The prototype was tested with a group of cats to evaluate the durability and effectiveness of the modular cork-based solutions. A single shape layout was used for practical applications and considering a sustainable manufacturing process.

Results

The findings underscore the potential of recycled cork as a sustainable material for design applications under adverse conditions. The durability and resilience of cork composites options make it a practical and reliable choice for shelters intended to provide comfort and protection for feral and stray cats in outdoor environments. As a primary outcome this product represents a pioneering system solution that embodies sustainability, circularity, and the cats ecosystem needs, providing a practical and environmentally conscious solution. As a modular product, designed with a singular shape, can be easily disassembled, replaced and resource recovery, reducing the amount of waste generated over time and promotes a more efficient use of materials by extending the product's lifespan. Furthermore, and considering cork's potential to be combined with other materials like recycled rubber, it can be optimized to provide a diverse range of options in terms of grain size and colors, enhancing urban aesthetic. As part of this project, we aim to integrate AI technology to offer additional guidance on the reuse and replacement of modular components. We are confident that through this innovative cork-based design system solution, we can make a meaningful contribution to fostering a more eco-friendly urban environment, while protecting this urban species and ecosystem. This cork-based design system solution can be strategically placed in public spaces, such as parks where feral and stray cats are frequently observed. Additionally, it is adaptable for indoor use and animal welfare organizations

Cumulus Association

P/REFERENCES OF DESIGN

This contribution was presented at Cumulus Budapest 2024: P/References of Design conference, hosted by the Moholy-Nagy University of Art and Design Budapest, Hungary between May 15-17, 2024.

Conference Website
cumulusbudapest2024.mome.hu

Conference Tracks
Centres and Peripheries
Converging Bodies of Knowledge
Redefining Data Boundaries
Bridging Design and Economics
Speculative Perspectives
The Power of Immersion
The Future of Well-being
Taming Entropy: Systems Design for Climate and Change
Ways of Living Together
Cumulus PhD Network

Full Conference Proceedings
https://cumulusbudapest2024.mome.hu/proceedings

ISBN Volume 1: 978-952-7549-02-5 (PDF)
ISBN Volume 2: 978-952-7549-03-2 (PDF)

DOI Volume 1: https://doi.org/10.63442/IZUP8898
DOI Volume 2: https://doi.org/10.63442/TADX4016

Conference Organisers
Moholy-Nagy University of Art and Design Budapest (MOME)
mome.hu
Cumulus Association
cumulusassociation.org