

Proportion  
Harmonies  
Identities

phi  
Fibonacci Golden Ratio

9th International  
Multidisciplinary  
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Creation,  
Transformation  
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Metamorphose



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## From Creation to Metamorphosis: Exploring the Transformative Power of Biomimicry in Adaptive Architecture

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### Abstract

Biomimicry offers a revolutionary approach to architectural design, drawing inspiration from nature's complex problem-solving methods to create sustainable, adaptable structures. This approach involves replicating natural functions and systems in a three-step process, resulting in buildings seamlessly adapting to their dynamic surroundings. Architects and designers can craft flexible, energy-efficient, and user-friendly structures by integrating biomimetic principles into adaptive architecture. This study explores the potential of biomimicry as a rich source of inspiration for adaptive architectural design, showcasing real-life success stories and examining the challenges and benefits of its adoption. Collaborative, interdisciplinary efforts between architects, engineers, biologists, and other experts can help establish a comprehensive design framework that infuses biomimicry strategies throughout the design process. Despite challenges such as knowledge gaps and regulatory constraints, continuous research, education, and supportive policies can promote biomimetic solutions in the built environment. By incorporating biomimicry principles, substantial environmental, social, and economic advantages can be achieved, including enhanced resource efficiency, reduced energy consumption, and healthier living spaces. In conclusion, the integration of biomimicry presents a transformative opportunity for architecture. By taking inspiration from nature's systems and processes, a new era of architecture can be created, harmonizing with our planet and promoting well-being for generations to come. As technology and understanding of biomimicry progress, we can anticipate even more innovative and sustainable applications in adaptive architecture.

**Keywords:** Biomimicry; Adaptive architecture; Sustainability; Resilience; Nature-inspired design