

e - Proceedings



Proceeding for International Undergraduates Get Together 2024 (IUGeT 2024)

"Undergraduates' Digital Engagement Towards Global Ingenuity"



Co-organiser:

INSPIRED 2024. Office of Research, Industrial Linkages, Community & Alumni (PJIMA), UiTM Perak Branch

Bauchemic (Malaysia) Sdn Bhd

Universitas Sebelas Maret

Universitas Tridinanti (UNANTI)

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The Golden Axis

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ABSTRACT

Inspired by the graceful form of snails, the Golden Axis is an innovative pavilion design that seamlessly integrates timber, infused with multiple elements, to create a captivating architectural marvel. This pavilion embodies the essence of organic harmony, inviting visitors into an immersive experience where the boundaries between the built environment and the natural elements meet. At the heart of "The Golden Axis" lies a translucent canopy sheltering the whole structure of the pavilion with the resemblance of a snail's shell, serving as a functional core. In addition to allowing natural light to permeate the interior spaces, these transparent elements purposefully harvest rainwater and store it underground. Crafted from sustainably sourced timber, the specially made stairway with a spiral form evokes a sense of warmth and earthy resonance, embracing visitors with a feeling of tranquillity. Surrounding the timber spiral, expanses of glass delicately intertwine, forming fluid lines and gentle curves that mimic the fluidity of a snail's shell. Inside the pavilion, visitors are enveloped in a sanctuary of serenity, where the rhythmic interplay of fusions of timber evokes a sense of balance and tranquillity. Curved seating alcoves provide intimate spaces for contemplation and reflection, while overhead, a leaf-like canopy filters the sunlight.

KEYWORDS: Sustainable, organic, spiral, fluidity, innovative

DESIGN DESCRIPTION

The Golden Axis is a pioneering architectural design that embodies the essence of sustainability and innovation, inspired by the natural form of a snail's shell. This unique structure seamlessly combines multiple materials with timber aimed at promoting environmental consciousness while providing a serene sanctuary for human interaction. The key features of our design are a spiralling structure, translucent roofing, and an integrated water harvest system. Inspired by the snail's shell, the pavilion features spiral stairways made from sustainably sourced timber, offering structural integrity and natural beauty. High-strength thermoplastic panels construct the roof, sheltering the entire pavilion. We use the translucent element to enhance natural light ingress and promote dynamic plays of light and shadow. The system cleverly designs the roof to collect and store rainwater, incorporating catchment areas on the roof's surface and storage tanks beneath the pavilion. The rainwater then flows through the hollow part of the roof's body. This technology ensures that rainwater is reused for the pavilion's landscaping. To minimize its environmental footprint, the Golden Axis sustainable feature optimizes natural resources such as sunlight and rainwater. The water harvesting system reduces the pavilion's dependence on municipal water supplies and mitigates its impact on local water infrastructure. Regarding the timber fusion aspects, the pavilion demonstrates the versatility of this design style, using timber as a building material and combining traditional craftsmanship with modern engineering to create a structure that is both inviting and enduring. Concrete, along with translucent elements like glass and acrylic plastic, infuses timber as the primary element.



The Golden Axis targets a broad audience, including environmental enthusiasts, architectural aficionados, people seeking relaxation and interaction, and organizations promoting sustainability and innovation in architectural designs. However, due to the pavilion's construction in a Universiti Teknologi Mara (UiTM)-owned area, the primary audience is undoubtedly UiTM's students and staff. In conclusion, The Golden Axis reimagines the relationship between architecture and the environment, offering a space that is not only functional and beautiful but also a catalyst for change in how we think about and interact with our surroundings. Through its innovative use of materials, integration of a water harvest system, and commitment to sustainability, The Golden Axis stands as a testament to the possibilities of modern, eco-conscious design.



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IDEA APPLICATION



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THE FLATE DRM ARE THAT MADE FROM PINEWOOD THAT ARE COATED POLYURETHANE WATER BASED FOR THE DEST OUTDOOR USED, DTHER THAN THAT, THIS PLATFORM ARE REPRESENT THE LIQUID THAT THE SNAL PRODUCE TO REEP LIVING

Figure 1: The Golden Axis



NOVELTY AND UNIQUENESS

The Golden Axis represents a groundbreaking confluence of sustainable architecture and innovative technologies, setting a new benchmark in eco-conscious design. Its novelty and uniqueness are evident in several key areas: Unlike conventional buildings, the Pavilion's design incorporates a rainwater harvesting system that blends in with the design. This system not only supplies water for landscaping needs but also serves as a real-world application of sustainable water management practices. It also serves as a model for sustainable architecture, demonstrating how buildings can coexist harmoniously with their natural environment. It challenges the status quo by integrating eco-friendly materials and water conservation technologies, setting a precedent for future developments in sustainable design.

BENEFITS TO MANKIND

The Golden Axis' design is beneficial in the aspects of environmental, economic, social, and educational. We believe that our design can help enhance its users' lives because it has a connection to nature and provides a tranquil space that can contribute to mental health and wellbeing, offering a sanctuary from the stresses of urban life. The rainwater harvesting system offers an economically viable source of water, resulting in cost efficiency. Our pavilion can serve as an educational platform, inspiring future generations to pursue eco-conscious solutions, in relation to knowledge and education.

COMMERCIAL POTENTIAL

This section outlines its commercial viability across various dimensions. We believe that our design has a unique architectural design, and there's a growing niche market for unique, natureinspired architectural designs that combine functionality with aesthetic appeal. From a business perspective, we can market our pavilion for diverse applications such as public parks, corporate campuses, and private retreats, thereby generating multiple revenue streams. Our pavilion's sustainability features give us a competitive advantage. The integration of a rainwater harvesting system with sustainable materials like timber and glass positions the Axis as a model for green architecture. We agree that obtaining certifications like LEED or BREEAM can enhance marketability and fulfil regulatory requirements, appealing to eco-conscious clients and investors. When it comes to entering the market, we also have one voice; it is critical for our design to comply with all of the local building regulations as well as the environmental regulations.

CONCLUSION

In conclusion, The Golden Axis embodies a groundbreaking fusion of sustainability and architectural ingenuity. Its biomimetic design, coupled with innovative technologies, offers a holistic solution to pressing environmental challenges while enriching communities and inspiring future generations. Sustainable elements like the rainwater harvest system and natural lighting applied at The Golden Axis have the potential to catalyse positive change, shaping a more resilient and harmonious future for humanity and the world. In the future, The Golden Axis will evolve by embracing technological advancements to improve efficiency and user experience. Those technological advancements that can be added to our design are smart sensors, and renewable energy systems, which can enhance the pavilion's sustainability, efficiency, and user experience. Strengthening community engagement and educational initiatives will deepen its societal impact, fostering a culture of environmental stewardship.

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