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A SPACE OF ENGAGEMENT: PROPOSING ENHANCEMENT OF COURTYARDS IN KULLIYAH OF ARCHITECTURE AND ENVIRONMENTAL DESIGN, IIUM

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ABSTRACT

The proposed enhancement of the KAED Courtyards at the Kulliyyah of Architecture and Environmental Design (IIUM) focuses on transforming underutilized outdoor areas into meaningful and engaging spaces for the campus community. The objectives are to strengthen the identity of KAED, create inclusive gathering spaces, maximize the use of open areas, and promote environmentally responsive design. The proposal emphasizes multifunctionality, sustainability, and community engagement, envisioning the courtyards as vibrant and adaptable hubs that support academic, social, and cultural activities while contributing to the long-term sustainability of the faculty.

Keywords: Courtyard Design, Community Engagement, Landscape Design, Sustainability

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INTRODUCTION

The Kulliyyah of Architecture and Environmental Design (KAED) at the International Islamic University Malaysia (IIUM), established in June 1996, was founded with the aim of advancing education and professional training in the built environment disciplines. Its academic philosophy is uniquely shaped by the Tawhidic approach, which integrates Islamic principles into teaching, research, and practice across architecture, planning, and design. This pedagogical orientation positions KAED as a pioneer in holistic education, dedicated to producing graduates who are not only technically proficient but also guided by ethical and spiritual values that contribute meaningfully to society.

Within this context, the courtyards at KAED represent significant yet underutilised assets that hold potential to support academic, social, and cultural life within the faculty. Their current lack of vibrancy and limited functionality restricts their capacity to foster engagement and strengthen KAED's identity. This study therefore seeks to revitalise these outdoor spaces, transforming them into inclusive hubs that facilitate interaction, learning, and relaxation. By adopting strategies that promote multifunctional use, sustainable landscaping, and community-oriented design, the project aims to align the courtyards with broader institutional aspirations, particularly the IIUM Sejahtera Framework, which emphasises spiritual, intellectual, emotional, and physical well-being. Furthermore, the proposed interventions are envisioned to contribute to global sustainability efforts, specifically Sustainable Development Goals (SDGs) 3 (Good Health and Well-Being), 4 (Quality Education), 11 (Sustainable Cities and Communities), and 13 (Climate Action).

This project is undertaken in conjunction with BAQS 2300 (Integrated Multi-Disciplinary Project) involving students from the departments of Architecture, Applied Arts & Design, and Quantity Surveying. Over a duration of 5 weeks, each team developed design solutions that enhance the KAED Courtyards, with the aim of creating spaces that strengthen campus life and reflect KAED's architectural and environmental values.



Figure 1. Site Plan - KAED Courtyard A (right) & Courtyard B (left)

(Source: Google Earth, 2025)

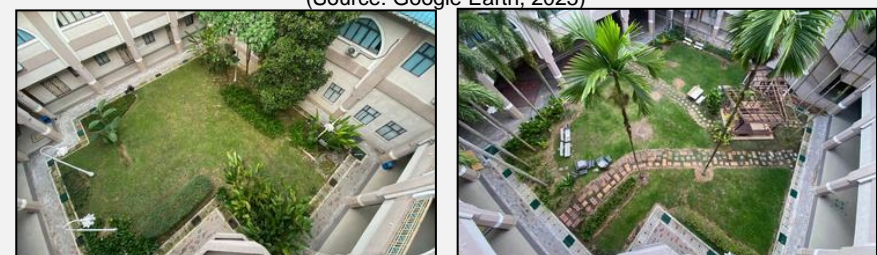


Figure 2. Top View of Courtyard A (right) & Courtyard B (left)(Source: Authors, 2025)

METHODOLOGY

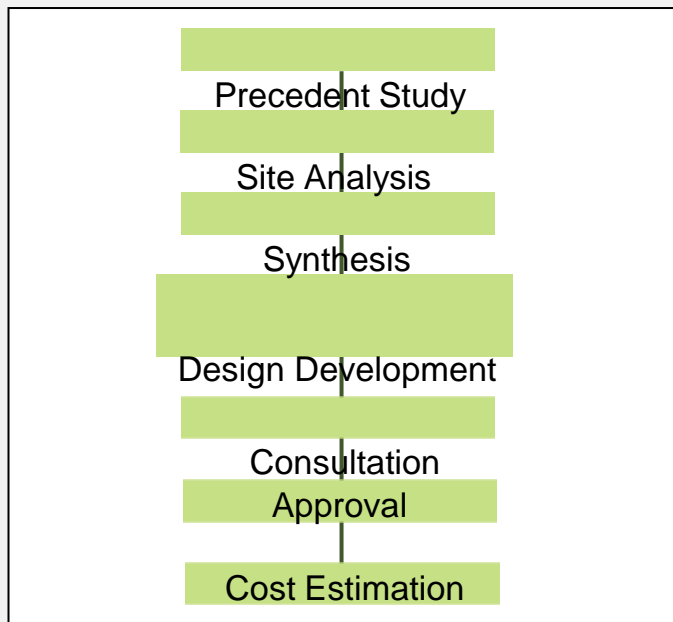


Figure 3. Methodology used in the study
(Source: Authors, 2025)

LITERATURE REVIEW

This project explores the transformation of underutilised campus spaces into inclusive and engaging areas that support interaction, learning, and well-being. Previous studies highlight the importance of inclusive design, creating environments that encourage community participation. The literature reviewed provides a foundation for understanding how design principles and planning strategies can be applied to enhance campus environments in meaningful and functional ways.

COURTYARD DESIGN

Courtyard spaces have long been recognized as essential architectural features that contribute to social, cultural, and environmental functions within the built environment. They serve as transitional zones that balance openness with enclosure, allowing for natural ventilation, daylight penetration, and opportunities for human interaction. Recent scholarship highlights their continuing relevance in contemporary design, particularly in addressing sustainability and inclusivity concerns in urban settings.

Gupta and Joshi (2021) emphasize that courtyards are not merely residual spaces but integral design elements that foster community engagement and adaptability. Their study underscores how courtyards can be strategically planned to enhance circulation, accommodate vegetation, and mediate between shaded and sunlit areas. This aligns with current efforts in sustainable landscaping and campus planning, where multifunctional outdoor spaces are increasingly prioritized.

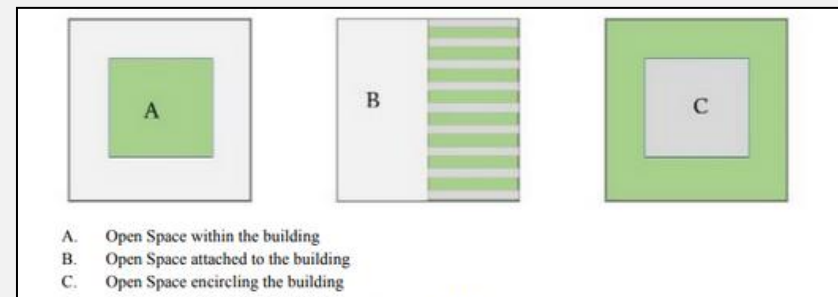


Figure 4. Different categories of transitional spaces
(Source: Gupta and Joshi, 2021)

OUTDOOR GYM

Outdoor gyms (OGs) are increasingly recognised as environmental infrastructure that supports health, fitness, and social well-being. Zhang (2020) explored outdoor gym design as a medium for stimulating social interaction, proposing cooperative play, competition, and conversational opportunities as strategies to strengthen engagement and community ties

COMMUNITY ENGAGEMENT

Community engagement is a critical element of efforts to improve the built environment because it ensures that concerns of local residents are considered in partnerships and planning, while also building social capital. Improvements to the built environment can facilitate social connections and increase opportunities for interaction, leading to greater community ownership, deepening opportunities for engagement, and instilling a sense of pride in physical improvements. Salameh et al. (2020) emphasize that inclusive design practices—especially in educational settings—can elevate user satisfaction by aligning architectural features with community aspirations.

PRECEDENT & CASE STUDIES

TAMAN TASIK TITIWANGSA



Figure 5. Aerial view of Taman Tasik Titivangsa
(Source: Google)

Taman Tasik Titivangsa is a prominent urban park in Kuala Lumpur, occupying approximately 46 hectares and featuring a large lake formed from a former tin mining pond. It was redeveloped and opened in February 1980 to serve surrounding communities with green recreational space. Designed to support fitness, leisure, family outings, and cultural functions, the park meets diverse user needs. Inclusivity: The park is accessible and welcoming, drawing users from various age.

TRX CITY PARK



Figure 6. The playground area inside the TRX city park (Source: Google)

TRX City Park is a groundbreaking 10-acre rooftop park atop The Exchange TRX mall within Kuala Lumpur's Tun Razak Exchange district. It is the city's first major public park in over two decades and the largest elevated park in Southeast Asia. Circulation & Microclimate: A gracefully curving central promenade is shaded by high canopy trees with layered planting, water features, and steel shade structures enhancing thermal comfort

COURTYARD @ UITM PUNCAK ALAM



Figure 7. Courtyard at UiTM Puncak Alam (Source: Google)

The symmetrical layout, structured with pathways, greenery, and raised planters, emphasizes circulation and relaxation. Greenery and axial views frame a calming atmosphere, while planter edges, textured paving, and natural surfaces introduce tactile variation. Natural sounds, wind, and fragrant planting enhance the sensory palette, resulting in a multi-sensory environment suitable for study, relaxation, and light physical activity.

TAYLOR'S LAKESIDE CAMPUS



Figure 8. Taylor's Lakeside Campus (Source: Google)

Taylor's Lakeside, the waterside setting provides a dynamic spatial experience. Waterside seating and breeze-oriented design foster comfort, while reflective water surfaces and expansive views evoke openness. The sounds of water splashing, rustling leaves, and the earthy, slightly swampy scent further enrich the sensory environment. The campus' design promotes a spacious, event-ready setting, offering flexibility for both casual gatherings and large-scale activities.

USM SCHOOL OF THE ARTS



Figure 9. Courtyard at USM School of the Arts (Source: Google)

The open sculpture garden and grass amphitheater at USM exemplify an integration of art, landscape, and social interaction. With dappled shade, green scenery, and vibrant sensory inputs such as rustling leaves, birdsong, and human activity, the space creates an engaging atmosphere. Textures from paved walkways, shrubs, and sculptural features complement floral scents and earthy tones. This design encourages curiosity and reflection while maintaining a calming and inspiring setting.

SITE ANALYSIS

Located at the heart of the KAED building, the two internal courtyards are surrounded by studios, lecture room, gallery and corridors. Courtyard A, near the main lobby, is larger and more open but remains underused due to direct sun exposure and lack of shade or seating. Courtyard B, closer to academic spaces, workshop and cafe is more enclosed with partial tree cover and occasional student use but lacks identity and function.

SITE ZONING & CIRCULATION

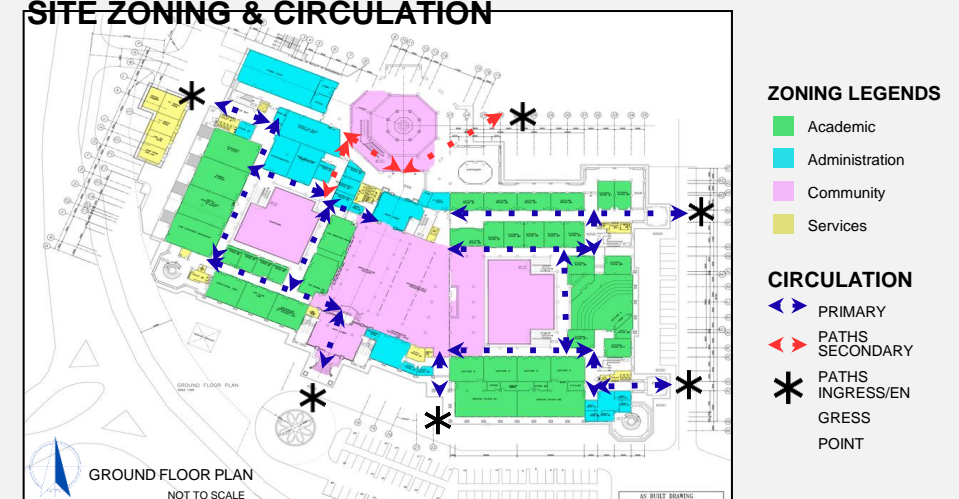


Figure 10. Circulation & Zoning of Courtyard A & Courtyard B. (Source: Author, 2025)

The site is surrounded by three main neighborhood contexts: social, educational, and service/utilities. Access is primarily shaped by the educational zone, as most users, students, staff, and visitors approach from nearby lecture theatres, laboratories, and tutorial rooms.

EXISTING UTILITIES & MAN-MADE FEATURE



Figure 11. Figure 12. Figure 13.
Figure 11,12, and 13 Existing utilities at Courtyard A



Figure 14. Figure 15. Figure 16.
Figure 14,15, and 16 Existing utilities at Courtyard B

Both courtyards are equipped with basic utilities such as water supply systems, drainage, and lamp poles to support functionality and user comfort. Courtyard A (482 m²) includes water bibs, a basin, and downpipes, while Courtyard B (349 m²) features a water dispenser and underground pipe supply. Despite these provisions, several lamp poles in both courtyards are not functioning, limiting visibility and reducing safety at night. This highlights the need for proper maintenance to ensure that the courtyards can serve as sustainable and inclusive spaces for the KAED community.



Figure 17. Figure 18. Figure 19.
Figure 17,18, and 19 Existing man made features at Courtyard A

The site shows several maintenance issues, including damaged benches and tables, a deteriorated gazebo under renovation, and uneven pavement caused by soil deposits and tree root intrusion. The land condition leads to water stagnation and surface cracks during rain, while one lamp post is non-functional, creating dim areas at night. Despite these challenges, the site hosts 16 types of trees including palms, shrubs, and groundcover, and is equipped with a sink and water tap for practical use. The drainage system remains in good condition, effectively managing water overflow.

MICROCLIMATE & SENSORY

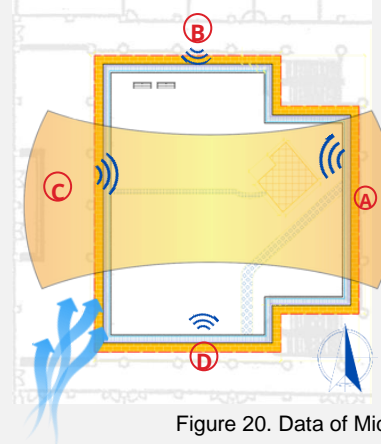


Figure 20. Data of Microclimate and Sensory for Courtyard A

DATA COLLECTION	10 A.M	4 P.M
Tempreature	27 °C	27.6 °C
Wind	1.6 m/s	1.03 m/s
Sound	55db	50.46db

(Source: Author, 2025)



Figure 21. Data of Microclimate and Sensory for Courtyard B

DATA COLLECTION	10 A.M	4 P.M
Tempreature	28.1°C	29.5 °C
Wind	0.9m/s	0.6m/s
Sound	52db	49.2db

(Source: Author, 2025)

SWOT ANALYSIS

S	<ul style="list-style-type: none"> • Strong architectural identity with Islamic elements. • Passive design supports ventilation and daylight. • Clear spatial zoning with courtyards as breathing spaces. • Integration with natural terrain and scenic views.
W	<ul style="list-style-type: none"> • Unpleasant odors from poor hygiene. • Excessive heat from lack of shading. • Limited attraction and student engagement. • Poor management and maintenance. • Poor soil causes waterlogging and safety risks.
O	<ul style="list-style-type: none"> • Design courtyards with shaded, multifunctional spaces. • Improve wayfinding with clear visual cues. • Use climate-friendly, cultural materials. • Provide openings, shading, and greenery.
T	<ul style="list-style-type: none"> • Climatic extremes reduce usability. • Increasing student intake risks overcrowding • Without maintenance, cladding, roof, and drainage may deteriorate • Inflexible design limits adaptation.

Figure 22. SWOT Analysis table (Source: Author, 2025)

DESIGN CONCEPT ENGAGEMENT

The proposed courtyard design is guided by the principles of movement, memory, and meaning, framing the courtyard as an interactive and inclusive space of engagement. The concept seeks to balance physical, social, and mental well-being through spaces that are both functional and culturally resonant.

MOVEMENT, MEMORY & MEANING; A SPACE OF ENGAGEMENT

To create a space that actively draws in students through functionality, interaction, visual appeal, cultural resonance, and physical activity.

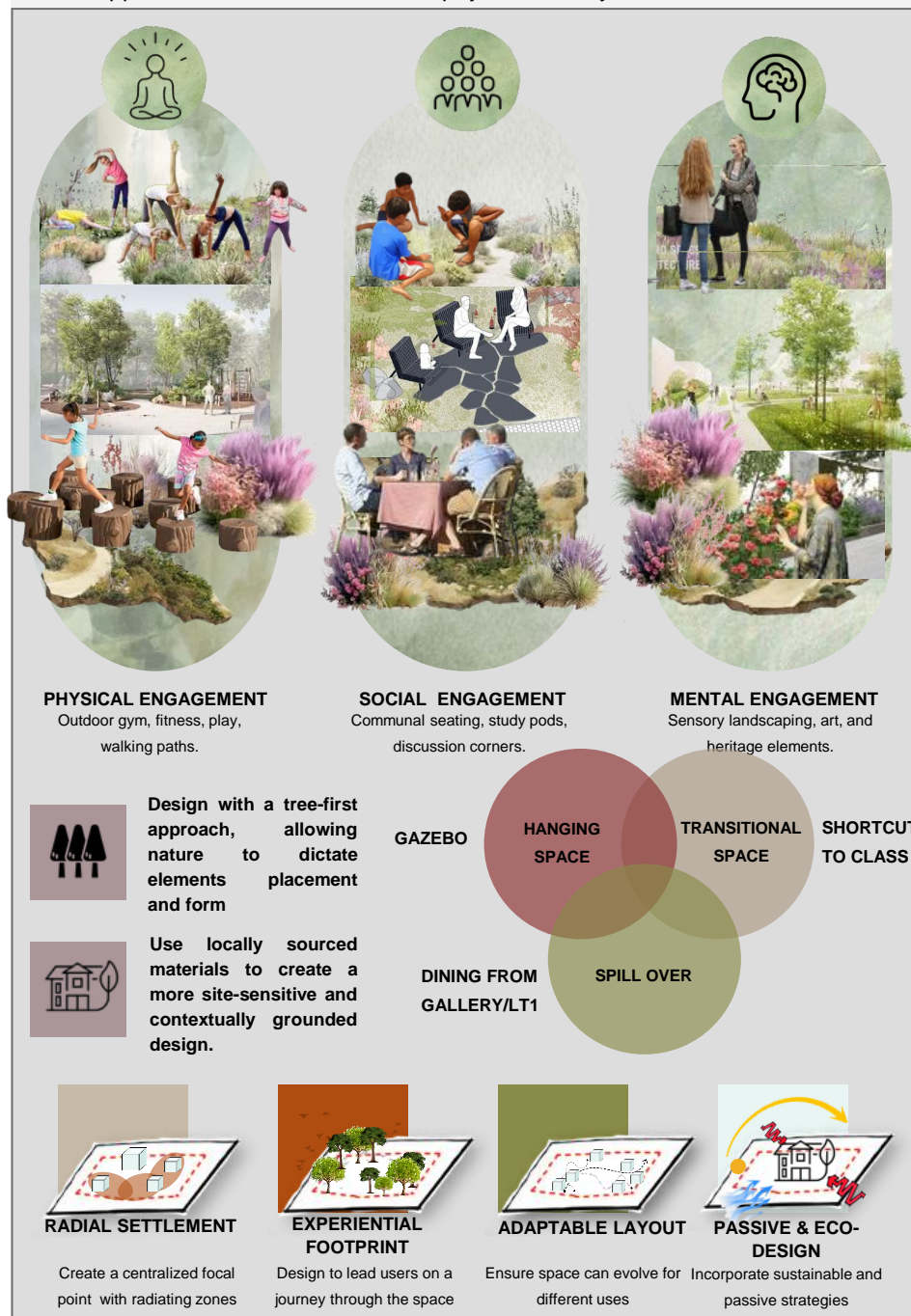


Figure 23. Design Concept & Theme (Source: Author, 2025)

DESIGN DEVELOPMENT

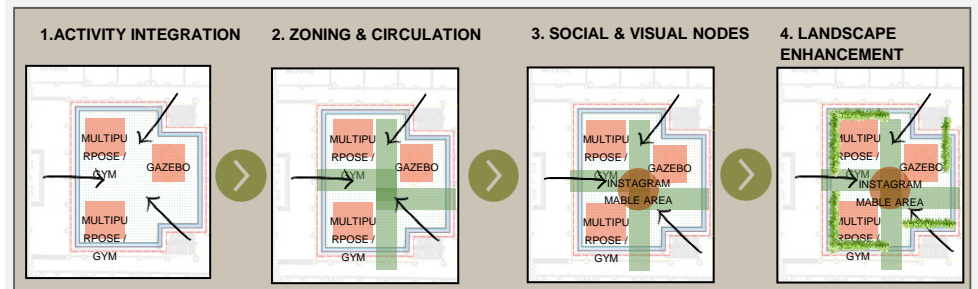


Figure 24. Design Development of Courtyard A (Source: Author, 2025)

The concept integrates four key strategies: activity integration, zoning and circulation, social and visual nodes, and landscape enhancement. The first step involved activity integration, positioning the courtyard as an active hub equipped with outdoor gym facilities, multipurpose areas, and gazebos. To organize these functions effectively, zoning and circulation were carefully developed. The design also emphasizes social and visual nodes, which act as focal points within the courtyard. Finally, landscape enhancement was incorporated to elevate environmental comfort and visual appeal.

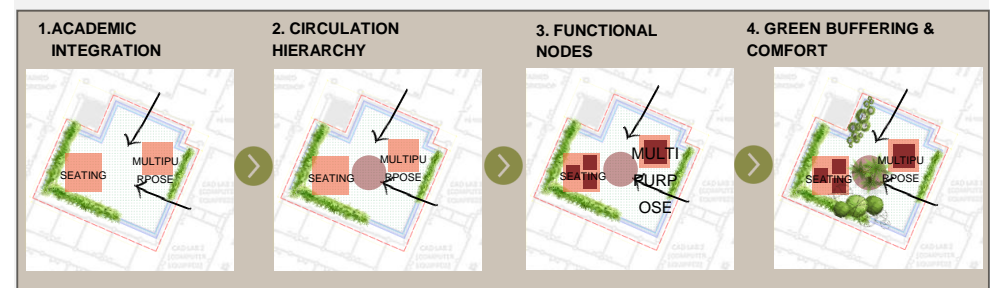


Figure 25. Design Development of Courtyard B (Source: Author, 2025)

The design development of Courtyard B begins with academic integration, framing the courtyard as a study and relaxation garden where nature blends with learning spaces to support informal discussions and research activities. Building on this, a radial circulation hierarchy is introduced to ensure smooth and direct access from all surrounding rooms, reinforcing its role as a central connector. Next, functional nodes are established to provide flexible zones for group work, individual study, or casual rest, ensuring the space adapts to different academic and social needs. Finally, green buffering and comfort strategies enhance the microclimate, reduce heat, and soften the courtyard visually, while incorporating varied seating and multipurpose areas that allow the courtyard to operate as both a contemplative retreat and a collaborative hub.

DESIGN FINALIZATION



Figure 26. The Bench



Figure 27. The Multipurpose Area



Figure 28. The Instagrammable Spot



Figure 27. The Outdoor Gvm



Figure 28. The Timber Entrance



Figure 29. The Bamboo Partition

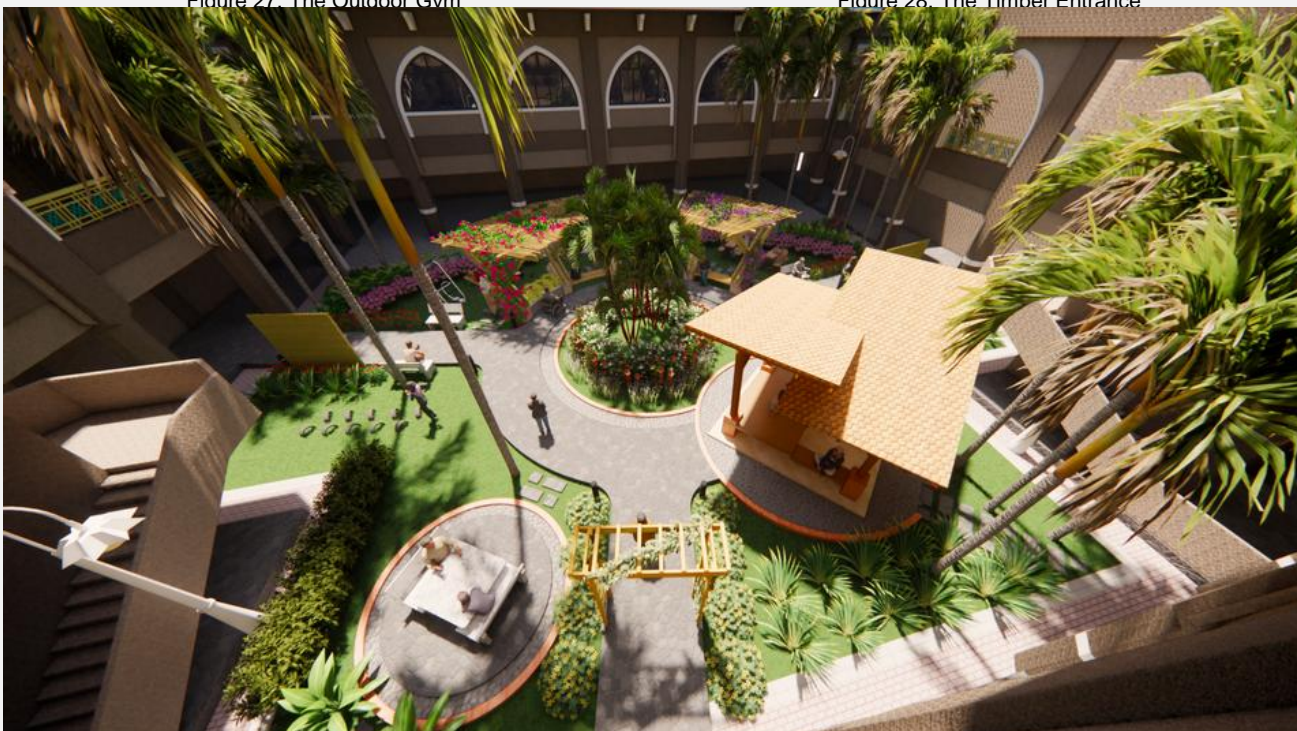


Figure 30. The Aerial View of Courtyard A



Figure 31. The Floor Plan of Courtyard A

Key features of Courtyard A include an outdoor gym for fitness and wellness, a multipurpose area that supports studying, mini-games, or small events, and resting/seating spaces designed for relaxation, sketching, or social interaction. To enhance identity and user experience, an Instagrammable area and interactive information boards are placed strategically as visual anchors and communication tools. A gazebo offers shaded seating for group discussions, while sanitation facilities ensure practicality with handwashing, water supply, and



Figure 32. The Bamboo Wall



Figure 33. The Pergola



Figure 34. The Centre



Figure 35. The Pavement



Figure 36. The Entrance



Figure 37. The Seating Area



Figure 38. The Aerial View of Courtyard B



Figure 39. The Floor Plan of Courtyard B

The design of Courtyard B highlights flexibility, comfort, and visual identity, offering a more intimate yet multifunctional outdoor environment. Organized through public, semi-private, and private zoning, the courtyard balances spaces for both active use and quiet retreat. The multipurpose area serves as the core activity hub, accommodating studying, casual discussions, mini-games, or small-scale events. Surrounding this, resting and seating areas provide opportunities for reading, sketching, or socializing in a relaxed atmosphere. An Instagrammable area strengthens the courtyard's visual appeal, inviting photography and videography to enhance its role as a vibrant engagement spot.

PRESENTATION DRAWING



Figure 40. North and South Elevation of Courtyard A (Source: Author, 2025)



Figure 41. East and West Elevation of Courtyard A (Source: Author, 2025)



Figure 42. North and South Elevation of Courtyard B (Source: Author, 2025)



Figure 43. East and West Elevation of Courtyard B (Source: Author, 2025)

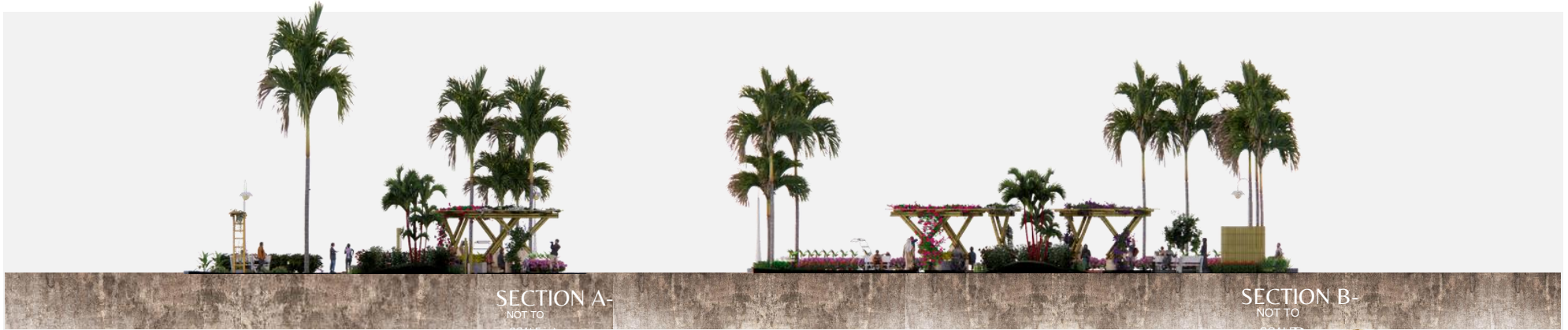


Figure 44. Section A-A' and B-B' of Courtyard A (Source: Author, 2025)



Figure 45. Section C-C' and D-D' of Courtyard B (Source: Author, 2025)

The section and elevation of the KAED Courtyard are included in the journal to provide a clearer understanding of its vertical proportions, spatial layering, and relationship between built and open elements, while also highlighting aspects such as natural ventilation, daylight penetration, and human-scale interactions, thereby complementing the plan view and offering a more holistic perspective of the overall design.

COST ESTIMATION & SPECIFICATIONS

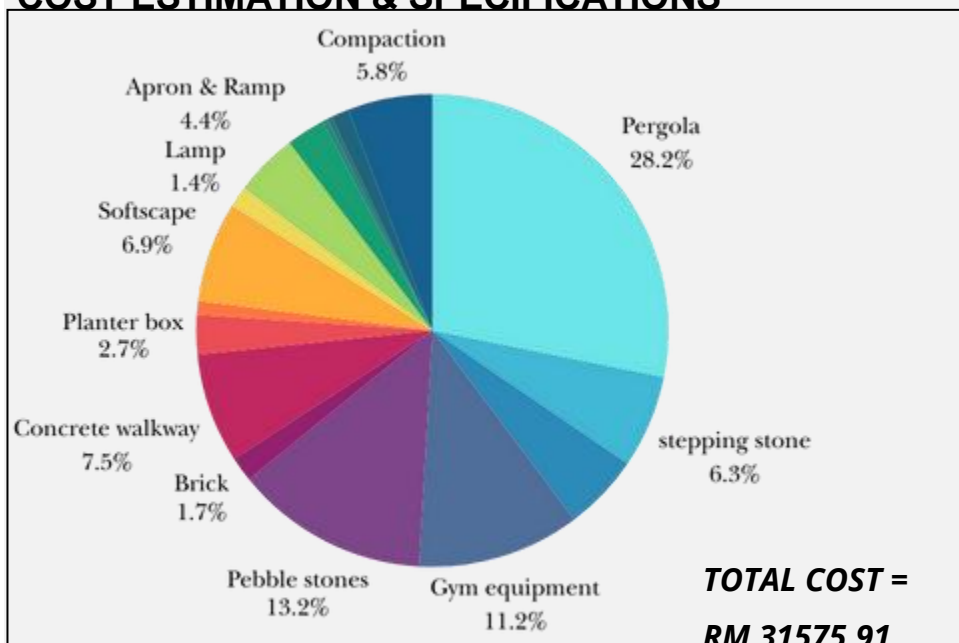


Figure 46. Cost Data for Courtyard A (Source: Author, 2025)

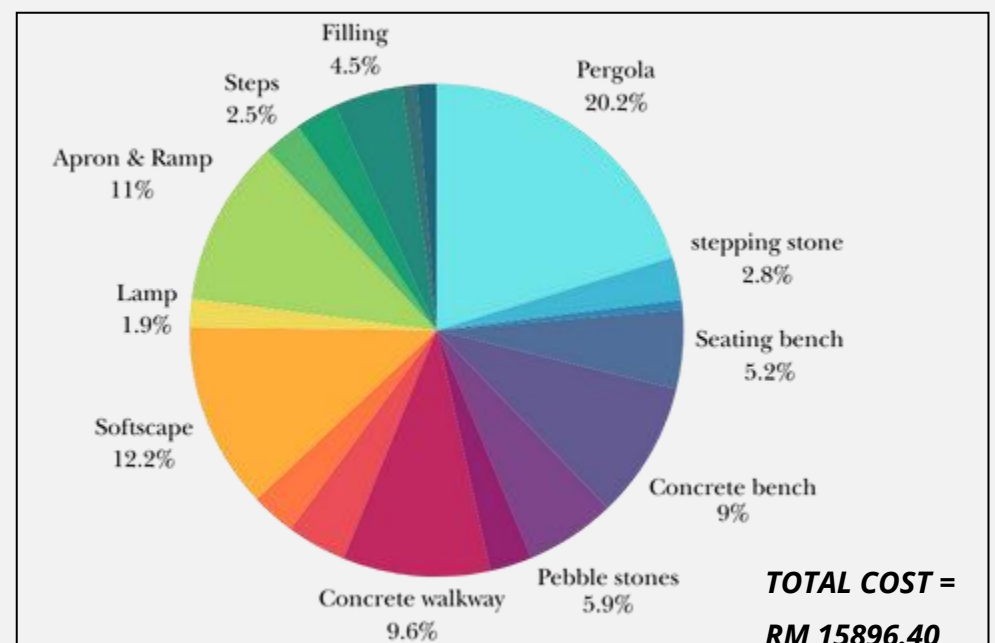


Figure 47. Cost Data for Courtyard B (Source: Author, 2025)

The cost analysis shows that Courtyard B costs RM 15,896.40, with spending focused on seating, softscape, and modest landscape features, making it a budget-friendly design for relaxation and social use. Courtyard A, at RM 31,575.91, is costlier due to the pergola, gym equipment, and extensive landscape works, emphasizing active and multifunctional engagement.

CONCLUSION

In conclusion, the Courtyard Enhancement project envisions the transformation of Courtyard A and Courtyard B into vibrant, multifunctional spaces that balance relaxation, interaction, and activity. Through careful zoning, sustainable design strategies, and integration of academic and cultural values, the courtyards will evolve into inclusive hubs that support student well-being, engagement, and learning. This initiative not only revitalizes underutilized spaces but also sets a precedent for thoughtful campus landscape development.

ACKNOWLEDGEMENT

Group 6, Lakar, wishes to express sincere gratitude for the opportunities and lessons gained throughout the course of this project. The process has not only deepened our understanding of multidisciplinary collaboration but also strengthened our skills in research, design, and practical application. We are especially thankful to the lecturers and coordinators of BAQS2300 Multi-Disciplinary Project, Semester 3, 2024/2025, at the Kulliyah of Architecture and Environmental Design (KAED), IIUM, for their continuous guidance, encouragement, and constructive feedback

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