03

SALINGKAIT: ENHANCEMENT PROJECT OF COURTYARD IN KAED, IIUM

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ABSTRACT

The KAED Courtyards, located within the Faculty of Architecture and Environmental Design, serve as essential outdoor areas for academic, social, and recreational activities. However, the existing courtyards face issues of limited functionality, lack of comfort, and underutilisation, which this initiative seeks to reconfigure Courtyards A and B into inclusive, polyvalent environments. The project aims to upgrade Courtyard A and Courtyard B of KAED into inclusive, multifunctional environments that encourage interaction, relaxation, and creative engagement among students, staff, and visitors. The objectives are to introduce climate-responsive design strategies, enhance social connectivity, and integrate sustainable features such as recycled materials and outdoor gym facilities. This alignment with Sustainable Development Goal 11: Sustainable Cities and Communities ensures the creation of inclusive, safe, resilient, and sustainable green public spaces for all. The method involves site analysis to assess spatial challenges, literature review to explore best practices in courtyard design, and precedent studies of similar academic spaces to guide effective solutions. The outcomes are design proposals that emphasise environmental comfort, multifunctional use, and opportunities for income generation. Ultimately, this initiative seeks to transform the KAED Courtyards into dynamic, sustainable, and engaging hubs that enrich both academic and social experiences within the KAED community.

Keywords: Courtyard, Enhancement, Sustainability, Multifunctional Space, Student Engagement, Climate-Responsive Design

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1.0 INTRODUCTION

The KAED Courtyards at the International Islamic University Malaysia (IIUM) are important outdoor spaces that support academic and social interaction within the faculty. However, the issues such as inadequate shading, limited facilities, and low utilisation reduce their effectiveness. This project aims to enhance Courtyard A and Courtyard B of KAED by introducing sustainable strategies such as recycled materials, greenery, and outdoor gym facilities to create a more engaging environment. The design also seeks alignment with Sustainable Development Goals 3, 11, and 13, as well as the IIUM Sejahtera Framework, which emphasises holistic well-being in physical, emotional, intellectual, and spiritual aspects (IIUM, 2020).

Undertaken through BAQS 2300 (Integrated Multi-Disciplinary Project), the initiative involves collaboration between students of Architecture, Applied Arts & Design, and Quantity Surveying. Over seven weeks, each team developed integrated design solutions to transform the two KAED Courtyards into dynamic, inclusive, and sustainable spaces for students, lecturers, and visitors.

Figure 1: Site - Courtyard A & B (Source: Authors, 2025)

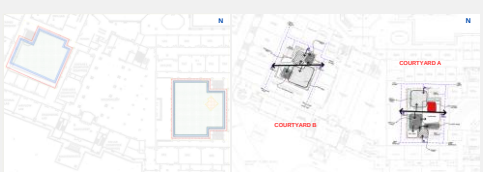

Figure 2: Site - Courtyard A & B with Measurement (Source: Authors, 2025)

2.0 METHODOLOGY

Figure 3: Research methodology chart (Source: Authors, 2025)

3.0 LITERATURE REVIEW

• ROLE OF COURTYARDS IN ACADEMIC INSTITUTIONS

Empirical evidence suggests that bespoke courtyard interventions conducive to student diversity in educational settings, functioning as spaces that encourage interaction, relaxation, and learning. According to Muhaisen (2020), courtyards act as natural regulators of light and ventilation, making them sustainable spaces that enhance comfort while reducing energy dependence. Within universities, they also provide opportunities for informal learning and cultural exchange, supporting both academic and social development.

• SPATIAL ORGANISATION IN COURTYARDS

The design and spatial configuration of courtyards play a critical role in shaping their usability and effectiveness. Almhafdy et al. (2013) found that features such as circulation paths, seating zones, and shaded areas directly influence user interaction and microclimatic comfort in courtyard spaces CoLab. Well-planned layouts enhance accessibility and support multifunctional use—ranging from individual study to group collaboration—a factor especially vital in dense academic contexts where space optimisation is essential. This is echoed in studies like Kulliyyah of Architecture (2022), which recommend strategic courtyard configurations to maximise usability under tropical conditions.

• CONNECTIVITY: PEOPLE, SPACES, AND ENGAGEMENT

Courtyards enhance connectivity by creating spatial nodes that link people, ideas, and activities across campus, thereby promoting collaboration, informal discussion, and peer-to-peer learning (Maali et al., 2022). Research also shows that thoughtfully designed courtyards tailored to students' diverse needs foster a stronger sense of belonging—which directly correlates with increased engagement, well-being, and academic participation (Gillen-O'Neel, 2021; Pinto et al., 2024).

• CHALLENGES IN COURTYARD ENHANCEMENT

Despite their potential, many courtyards suffer from poor maintenance, inadequate shade, and underuse. Research at Yale University (Banerjee, 2011) revealed that structural neglect and underplanting often render courtyards unwelcoming and underutilised on campus. Similarly, case studies of university public spaces report that a lack of shade and privacy discourages prolonged use, reducing courtyards to mere transitional zones rather than active communal environments. To prevent this, designers must prioritise climate-responsive strategies—such as greenery, shade structures, seating, and water features—and adopt user-centred planning to activate these spaces meaningfully.

• SUSTAINABLE DEVELOPMENT AND CLIMATE-RESPONSIVE DESIGN

Enhancing courtyards supports SDG 11: Sustainable Cities and Communities by fostering inclusive, resilient, and sustainable environments. Through climate-responsive design such as vegetation, water features, and shading devices, courtyards improve thermal comfort, reduce energy reliance, and mitigate heat gain (Muhaisen, 2006). Beyond environmental benefits, these enhancements create healthier, more dynamic settings that enrich both academic and social experiences on campus.

• USER-CENTRED AND MULTIFUNCTIONAL APPROACHES

Recent studies highlight the importance of user-centred design in courtyard planning. By addressing student preferences and activity patterns, courtyards can become multifunctional spaces for both learning and leisure. Flexible layouts with modular furniture, shade, and adaptable zones allow them to serve as outdoor classrooms, exhibition areas, relaxation spaces, or performance venues, maximising student engagement and campus life (Romyanond, 2023).

4.0 PRECEDENT STUDY AND CASE STUDY

PRECEDENT STUDY

• TRX CITY PARK, TUN RAZAK EXCHANGE, KUALA LUMPUR

Located in the heart of Kuala Lumpur's financial district, TRX City Park is a vibrant urban green space developed as part of The Exchange TRX. Designed to offer a lush retreat amidst skyscrapers, the park spans 10 acres and features layered landscaping, native plant species, and pedestrian-friendly walkways. Seamlessly integrated with the surrounding retail and office developments, it embodies a sustainable city-in-a-park concept while promoting wellness, connectivity, and urban biodiversity.(The Exchange TRX, n.d.)

Figure 4: Site - TRX City Park
(Source: Pentago.com)

• TAMARIND SQUARE, CYBERJAYA, SELANGOR

Located in Cyberjaya, Tamarind Square is a modern urban sanctuary that reimagines the traditional town square for contemporary lifestyles. Blending nature with architecture, it features lush greenery, open courtyards, rooftop gardens, and pedestrian-friendly walkways intertwined with retail, dining, and office spaces. Designed as a living community hub, Tamarind Square embraces the "urban village" concept—where work, leisure, and nature coexist seamlessly. Its sustainable design fosters social interaction, creativity, and wellness, making it a vibrant green heart within Malaysia's tech-driven city. Tamarind Square is a business centre that aims to develop into an urban village where people can socialize (Amalina , 2024).

Figure 5: Site—Tamarind Square
(Source: erisgoesto.com)

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CASE STUDY

• COURTYARD UNDER LONGAN TREES – QUANZHOU, CHINA

Located in Quanzhou, China, the Courtyard under Longan Trees is a serene residential and studio retreat designed by Wenkai Zhong of Spacework Architects. Nestled within a grove of longan trees, the 211 m² dwelling preserves the existing landscape by weaving architecture harmoniously around nature. Comprising five interconnected pavilions linked by a ring gallery, the design creates a sequence of courtyards that vary in size and character, each shaped by sunlight, access, and function. This symbiotic relationship between built form and trees fosters tranquility, intimacy, and a deep sense of place, embodying a sustainable vision where living and working blend seamlessly with the rhythms of the natural environment. (MAD Architects, 2020)

Figure 6: Site - Courtyard under Longan Trees
(Source: ArchDaily.com)

Infused with thoughtful spatial strategies, the courtyard design features:

- **Filtered sunlight in enclosed spaces** – directing natural light into shaded or hidden areas (such as under pergolas or inner rooms) to create soft illumination, reduce artificial lighting, and bring warmth without overheating.
- **Shading devices** – using trees, climbers, and green roofs to block direct sunlight, cool spaces naturally, and enhance a softer, nature-friendly ambiance.
- **Integration and communication with nature** – blending built spaces with the environment, allowing people to see, feel, and interact with natural elements like plants, light, wind, and water.

• FUNNEL HOUSE – NILAI, SEREMBAN

Located in a gated community called Planters' Haven in Nilai, Negeri Sembilan, Funnel House is a single-storey residence perched on a gently sloping one-acre site surrounded by mature durian trees. From the road, the house appears restrained—its narrow, funnel-shaped frontage gradually expands toward a dramatic garden beyond. A tunnel-like concrete entrance guides visitors inward and then unfolds into an open, semi-octagonal living and dining space with full-height glazing that celebrates the landscape beyond. According to MAPEI Malaysia (2018), the design of the house adheres to sustainable design principles. The flooring's natural cement finish was chosen to complement the design's natural and minimalistic character.

Figure 7: Site - Funnel House
(Source: Archdaily.com)

Infused with thoughtful spatial strategies, the courtyard design features:

- **Pergola (green-inflected shading) -** Employs greenery—such as climbers or green roof elements—to soften harsh sunlight, naturally cool the space, and foster a gentle, nature-engaged ambiance.
- **Clay Brick -** Utilizes unpainted, local clay brick—a natural, durable material that maintains cool interiors, allows breathability, and introduces an earthy warmth and texture to the architecture.
- **Brick Pattern -** Implements patterned brick arrangements to enrich façades

• TAYLOR UNIVERSITY LAKESIDE – SUBANG JAYA

Taylor's University Lakeside Campus (TULC), Malaysia located in the west of Malaysia, in Subang Jaya, Selangor. Taylor's University Lakeside Campus is a landmark educational environment designed around a central man-made lake. The campus integrates academic blocks, student housing, and recreational areas with lush landscapes, creating a vibrant hub for learning, collaboration, and community life. The lake acts as the heart of the campus, enhancing natural ventilation, cooling, and scenic quality, while broad pedestrian walkways and open plazas encourage movement and social interaction. By blending architecture with ecology, the campus embodies a sustainable vision of holistic education in a garden-like setting. (NWKA, n.d.)

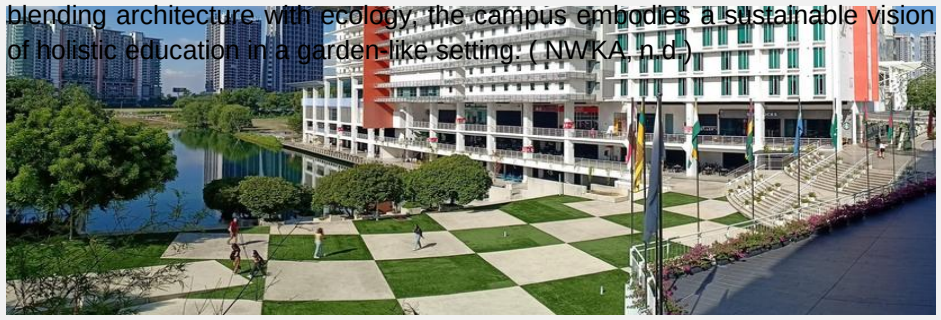

Figure 8: Site - Taylor University Lakeside
(Source: CommonGround.work.com)

Infused with thoughtful spatial strategies, the courtyard design feature:

- **Chess Tile Pattern –** employs alternating light and dark squares across floors and surfaces to create a timeless checkerboard effect, adding visual rhythm, contrast, and a sense of order within communal and transitional spaces.

• YUECHENG COURTYARD KINDERGARTEN – BEIJING

Located in Beijing, China, YueCheng Courtyard Kindergarten is a unique educational space that blends tradition and innovation. Designed within a restored siheyuan (traditional courtyard house) alongside contemporary additions, the kindergarten embraces cultural heritage while fostering a progressive learning environment. The campus integrates classrooms, reading areas, and communal facilities around courtyards that encourage openness, interaction, and connection with nature, as kindergarten building design plays an important role in the development of the child's personality (MAD Architects, 2020).

Figure 9: Site - YueCheng Courtyard Kindergarten
(Source: ArchiDaily.com)

Infused with thoughtful spatial strategies, the courtyard design features:

- **Layout –** an open-concept plan that incorporates teaching spaces, a library, a small theater, and a gymnasium. The spatial openness promotes inclusivity, freedom of movement, and a sense of shared community.
- **Curve Organizations –** curved walls introduced at regular intervals, originally structural supports, now shape a "borderless" learning environment. This encourages exploratory play, ubiquitous reading, and richer interaction between children and space.
- **Optimizing Spaces –** every area is carefully adapted for multiple uses, ensuring efficient circulation, flexible learning settings, and maximum engagement within

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5.0 SITE ANALYSIS

Located on Ground Level of the KAED building at IIUM, the two KAED courtyard consist of two open-air landscaped spaces that enrich the faculty's environment. Courtyard A, positioned near the KAED Gallery, acts as a transitional zone for exhibitions, informal discussions, and student gatherings in a semi-open setting. Courtyard B, located beside Laman KAED and the workshops, serves as a green landscaped courtyard, offering a refreshing outdoor retreat that supports both relaxation and creative activities. Together, these courtyards bring natural light, ventilation, and social vibrancy into the academic block—merging landscape and architecture to foster a more engaging and inclusive atmosphere for students and staff.

Figure 10: Site - Courtyard A & B
(Source: Authors, 2025)

Figure 11: Site - Courtyard A & B with Measurement
(Source: Authors, 2025)

SWOT Analysis

Table 1: The SWOT analysis table.

S	• **Passive Design** – Courtyards and arcades support cross-ventilation and natural lighting; building orientation follows sun path. • **Natural Terrain** – Terraced design matches landform, offering forest and hill views
W	• **Unpleasant odor from cat droppings.** • **Hot due to lack of shading.** • **Few attractions or activities for students.** • **Poor management and maintenance.** • **Weak and muddy soil; flooding and slippery surfaces.**
O	• **Activate Outdoor Spaces** – Add pergolas/trellises; turn open spaces into lounges, exhibitions, or small gardens. • **Local & Climate-Friendly Materials** – Use brick, timber, or stone for airflow, heat reduction, and local identity.
T	1. **Heavy rain and strong sun affect semi-open spaces.** 2. **Student growth may cause overcrowding and noise.** 3. **Aging building envelope without maintenance.** 4. **Rigid layout limits modern upgrades.**

There are 3 main type of neighbourhood context for site surrounding which are:

- Social
- Educational
- Service / Utilities

Access: Main users (students, staff, visitors) will likely approach the site from educational buildings (Lecture Theatre, Labs, Tutorial Rooms), which dominate the blue (educational) zones surrounding the site.

SITE ZONING

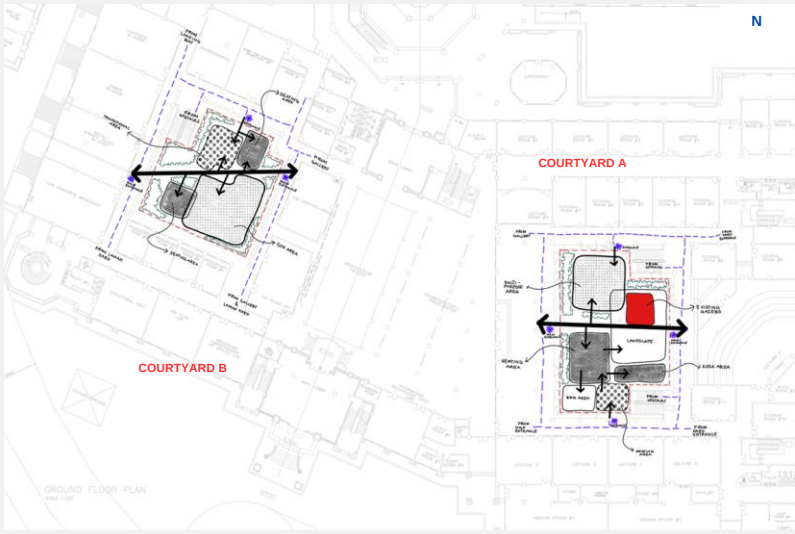

Figure 11 - Zoning Courtyard A & B
(Source: Authors, 2025)

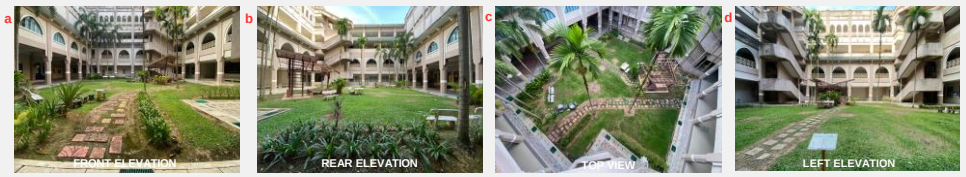

Figure 12: Site - Elevation Views of Courtyard A
(Source: Authors, 2025)

VIEWS INTO SITE :

Figure 13, A,B,C and D: Site - Views into Courtyard A
(Source: Authors, 2025)

VIEWS FROM SITE :

Figure 14, A,B,C and D: Site - Views from Courtyard A
(Source: Authors, 2025)

Acoustic analysis indicates that the primary noise contributors originate from the KAED Gallery and Theatre

All the view from site are KAED building

Main wind comes from the North-East, flowing directly into the site and shaded by building

The heliocentric path traverses from East to West. Solar gain is mitigated by the shading envelope of the adjacent four-story structure.

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

Table 2: Environmental Data Collection - Courtyard A
(Source: Authors, 2025)

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COURTYARD B

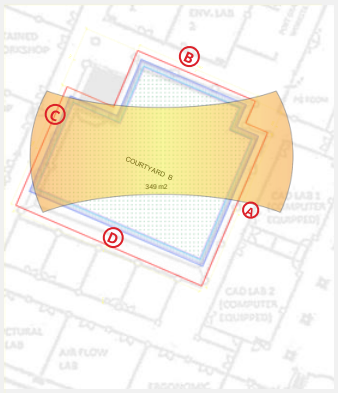

Figure 15: Site - Courtyard B Sensory & Climate Study (Source: Authors, 2025)

Figure 16: Site - Elevation Views of Courtyard B (Source: Authors, 2025)

VIEWS INTO SITE :

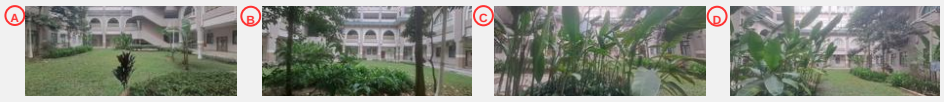

Figure 17, A,B,C and D: Site - Views into Courtyard B (Source: Authors, 2025)

VIEWS FROM SITE :

Figure 18, A,B,C and D: Site - Views from Courtyard B (Source: Authors, 2025)

Sounds come from cafe and lab

All the view from site are KAED building

Main wind comes from the North-East, flowing directly into the site and shaded by building

Sun moves East to West, but not fully exposed as it is shaded by 4 story building

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

Table 3: Environmental Data Collection - Courtyard B (Source: Authors, 2025)

6.0 DESIGN CONCEPT

CONCEPT: WOVEN AXIS

The guiding concept of this landscape design, Woven Axis, is rooted in the values and identity of KAED as a multidisciplinary faculty. It draws upon two interrelated metaphors which are weaving and the axis to express both diversity and unity within the courtyard. The idea of woven captures the richness of KAED's five disciplines: Architecture, Landscape Architecture, Urban and Regional Planning, Quantity Surveying, and Applied Arts and Design. Each discipline is conceptualized as a distinct component, characterized by unique attributes and methodologies. While these strands remain autonomous, their interlacing facilitates a unified architectural fabric. This weaving process symbolises the collaborative spirit that underpins KAED, where interaction, dialogue, and the exchange of ideas strengthen the whole. Within the courtyard, this concept is expressed spatially through interconnected spaces—zones of learning, leisure, reflection, and gathering that overlap and merge rather than stand apart. Paths, nodes, and green areas are arranged in a manner that mirrors the interlacing of threads, reinforcing the sense of constant connection

- Woven: A blend of five unique disciplines interlacing to form a single, collaborative fabric of ideas.
- Axis: A central backbone that aligns movement and connects people across the courtyard.

Figure 19: Design Concept Illustration (Source: Authors, 2025)

The axis functions as the counterpart to weaving, acting as the structural backbone that holds the design together. While weaving brings diversity, the axis provides order and orientation. It establishes a main guiding line that links significant spaces, directs circulation, and aligns key visual corridors. In doing so, the axis not only organises movement but also becomes a symbolic connector, embodying the shared direction and common ground where all disciplines converge. Much like the warp threads in a loom that give stability to a fabric, the axis ensures coherence and clarity within the richness of woven layers.

Together, the integration of weaving and axis creates a courtyard that is both dynamic and harmonious. The weaving of spaces celebrates variety, interaction, and interdisciplinary collaboration, while the axis grounds the design with a sense of unity, flow, and orientation. This synthesis transforms the courtyard into more than a physical environment where it becomes a living expression of KAED's identity as a place where knowledge is shared, disciplines intersect, and communities thrive. The Woven Axis concept not only supports functional use of space but also communicates a deeper narrative of collaboration, inclusivity, and continuity [illegible]'s role as [illegible]d innovation.

7.0 DESIGN DEVELOPMENT

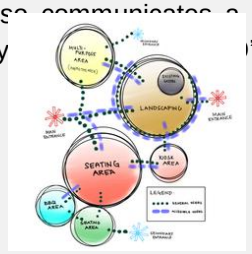

Diagram 1 - Bubble Diagram Courtyard A (Source: Authors, 2025)

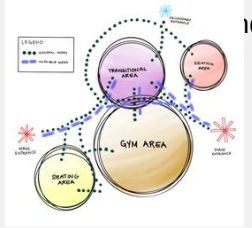

Diagram 2 - Bubble Diagram Courtyard B (Source: Authors, 2025

	COURTYARD A	COURTYARD B
1.	The design utilizes the sun's path from sunrise to sunset to establish its primary visual axis.	The space is oriented so that the visual backbone follows the direct line of the sun's movement.
2.	Multiple wind directions cross the site to form an integrated, woven spatial pattern.	The space integrates diverse wind flows into a complex woven pattern to connect the site.
3.	The layout uses repetition and a clustered hierarchy to organize various functional zones.	Zones are arranged in a clustered layout that emphasizes hierarchy and structural repetition.
4.	Primary and secondary paths guide movement through a unified series of social and recreational spaces.	Clear main and secondary circulation routes link the gym, seating, and transitional areas into a unified whole.

Table 4: Design Process of Courtyard A & Courtyard B (Source: Authors, 2025)

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8.0 DESIGN FINALISATION

The final courtyard design of KAED IIUM embodies the Woven Axis concept by interlacing diverse functions, learning, leisure, reflection, and gathering, into a unified landscape. Like threads woven into a fabric, the courtyard integrates pathways, nodes, and green areas to represent the synergy of KAED's five disciplines, creating a cohesive environment that fosters interaction and collaboration. Beyond its physical form, the design also responds to the current lack of vibrancy and inclusivity by transforming the courtyard into a dynamic hub where students and staff from different fields can converge, exchange ideas, and build stronger cross-disciplinary connections. This final design not only enhances the courtyard's identity but also reinforces the values of unity, creativity, and collaboration that define KAED.

COURTYARD A

Figure 20: Entrance Courtyard A from KAED Gallery
(Source: Authors, 2025)

This is the view of Courtyard A from the KAED Gallery, highlighting its position as an internal open space within the KAED building, framed by surrounding studios and circulation areas that define its role as a central landscape hub.

Figure 21: Entrance courtyard A
(Source: Authors, 2025)

Upon entering Courtyard A from the KAED building, one immediately encounters Laman Suara (amphitheater) alongside the KAED gazebo

Figure 22: Laman Suara (Multipurpose Area)
(Source: Authors, 2025)

Upon entering Courtyard A from the KAED building, one immediately encounters Laman Suara (amphitheater) alongside the KAED gazebo, both serving as central features that enhance interaction within the courtyard's communal space.

Figure 23: Multipurpose Area
(Source: Authors, 2025)

Laman Suara (amphitheater) functions as a multipurpose area, supporting performances, discussions, and student activities while fostering interaction and engagement within the courtyard space.

Figure 24: Gazebo KAED
(Source: Authors, 2025)

The Gazebo KAED, an existing structure from a past project, is extended with a circular green grass area, enhancing its function as a relaxing and gathering spot.

Figure 25: Gazebo KAED
(Source: Authors, 2025)

This is the view of Courtyard A from the KAED Gallery, highlighting its position as an internal open space within the KAED building, framed by surrounding studios and circulation areas that define its role as a central landscape hub.

Figure 26: Gazebo KAED
(Source: Authors, 2025)

The Gazebo KAED, an existing structure from a past project, is extended with a circular green grass area, serving as a space where students can hold discussions or spend leisure time.

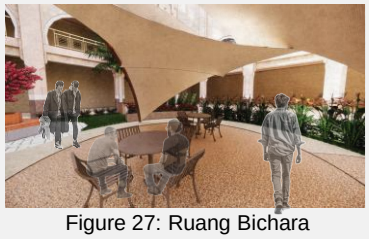


Figure 27: Ruang Bichara
(Source: Authors, 2025)

Ruang Bichara (Dialogue Hub), located under a tensile structure, is equipped with two sets of tables, each with four seats, providing a shaded area for students to gather and interact.

Figure 28: Sudduth Tenang
(Source: Authors, 2025)

Sudduth Tenang (Tranquil Retreat) is designed with intimate seating pods surrounding a central flowering tree, creating a peaceful retreat for students. Adjacent to this area, an empty flexible spot is provided for potential kiosk rentals, supporting future activity and vibrancy."

Figure 29: Barbeque Area
(Source: Authors, 2025)

Laman Panggang (Tranquil Retreat) serves as a vibrant BBQ area, equipped with grills and communal seating. It provides students and staff with a casual outdoor setting to enjoy meals, celebrate events, and strengthen bonds through shared gatherings and culinary activities.

COURTYARD B

Figure 30: Entrance courtyard B from Computer Lab
(Source: Authors, 2025)

Figure 31: Entrance courtyard B from Computer Lab
(Source: Authors, 2025)

At the entrance of Courtyard B, visitors are welcomed by Laman Bichara with its communal seating, Laman Sihat featuring outdoor gym facilities, and Laman Damai highlighted by semi-circular seating with a calming water feature for relaxation.

Figure 32: Laman Bichara
(Source: Authors, 2025)

When entering the courtyard, the first view reveals Laman Bichara, where a set of table and chairs is complemented by a large seating pod, creating a welcoming space for students to gather, discuss, or simply relax together.

Figure 33: Laman Bichara
(Source: Authors, 2025)

A large seating pod is provided, designed to accommodate bigger groups. It creates a relaxing and inclusive setting where students can gather, interact, or simply unwind together, promoting a sense of comfort, collaboration, and community.

Figure 34 : Laman Bichara
(Source: Authors, 2025)

Stepping stones and a paved walkway connect this area seamlessly to other courtyard spaces, encouraging movement, exploration, and continuous engagement across the landscape.

Figure 35: Entrance Courtyard B from Laman KAED
(Source: Authors, 2025)

This courtyard includes a ramp to ensure accessibility for persons with disabilities (PWD), providing a smooth connection and serving as the main pathway leading directly towards Laman KAED.

Figure 36: Semi-Circular Built in Seating
(Source: Authors, 2025)

Figure 37: Semi-Circular Built in Seating
(Source: Authors, 2025)

Laman Damai features semi-circular seating combined with a complementary semi-circular water feature, creating a calm and reflective atmosphere. Strategically located near the entrance from Laman KAED, it welcomes users with a sense of tranquility and balance.

Figure 38: Gym Area
(Source: Authors, 2025)

Laman Sihat functions as an outdoor gym equipped with exercise facilities that promote health and well-being. The space also provides several seating benches, allowing users to rest, socialize, or observe activities, balancing fitness with relaxation in the courtyard.

The upgraded KAED Courtyard - SALINGKAIT embodies the Woven Axis concept by integrating diverse spaces that balance learning, leisure, interaction, and well-being. Laman Suara (amphitheater) and Gazebo KAED encourage gatherings and performances, while Ruang Bichara and Sudduth Tenang offer shaded seating for discussions and quiet reflection. Laman Panggang adds vibrancy through communal dining, and flexible kiosk spots support future activities. Meanwhile, Laman Damai promotes relaxation with water features, and Laman Sihat encourages fitness with outdoor gym facilities. Together, these interconnected spaces create a dynamic, inclusive, and sustainable courtyard that strengthens KAED's identity as a hub of creativity and collaboration.

9.0 ELEVATION AND SECTION DRAWINGS

Courtyard A

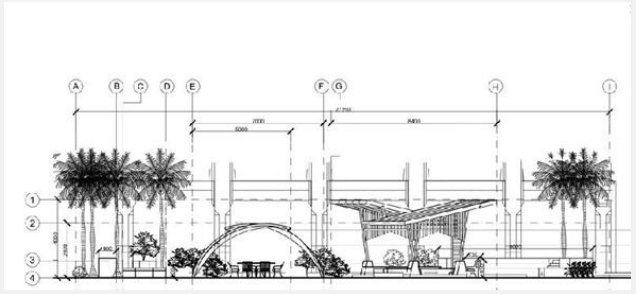


Figure 39: South Elevation, Courtyard A (Not to scale)
(Source: Authors, 2025)

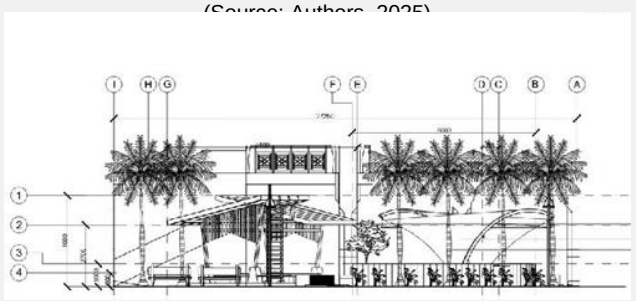


Figure 40: North Elevation, Courtyard A (Not to scale)
(Source: Authors, 2025)

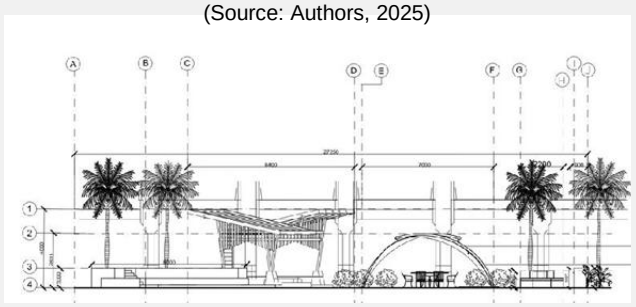


Figure 41: East Elevation, Courtyard A (Not to scale)
(Source: Authors, 2025)

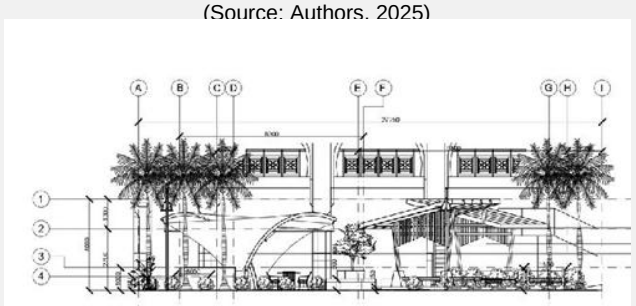


Figure 42: West Elevation, Courtyard A (Not to scale)
(Source: Authors, 2025)

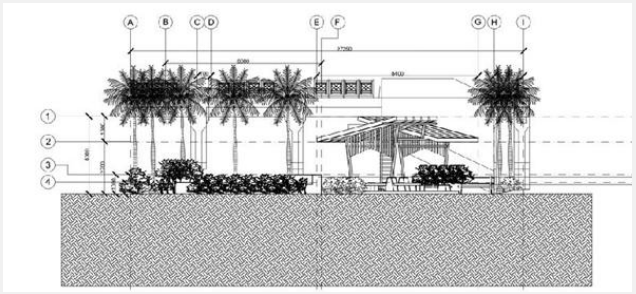


Figure 43: Section A-A, Courtyard A (Not to scale)
(Source: Authors, 2025)

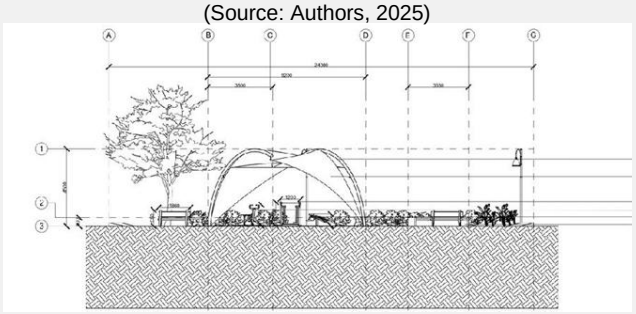


Figure 44: Section B-B, Courtyard A (Not to scale)
(Source: Authors, 2025)

Courtyard B

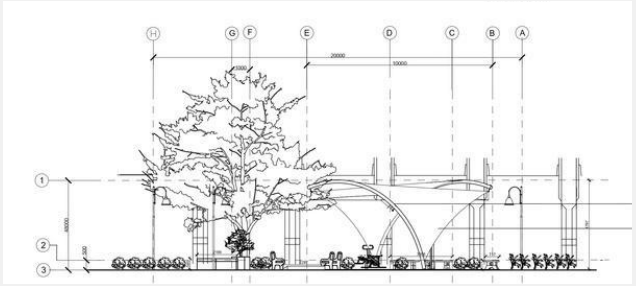


Figure 45: East Elevation, Courtyard A (Not to scale)
(Source: Authors, 2025)

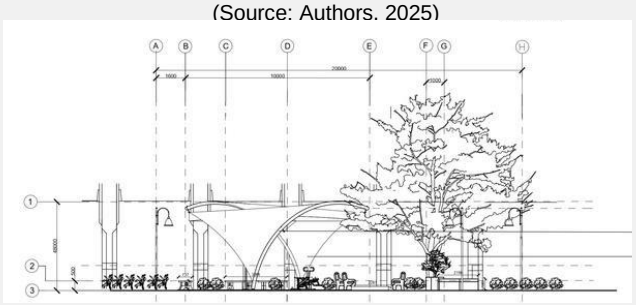


Figure 46: North Elevation, Courtyard B (Not to scale)
(Source: Authors, 2025)

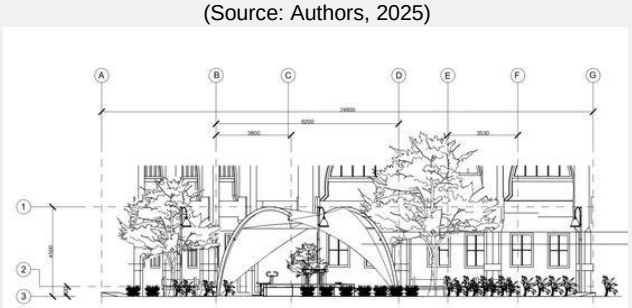


Figure 47: East Elevation, Courtyard B (Not to scale)
(Source: Authors, 2025)

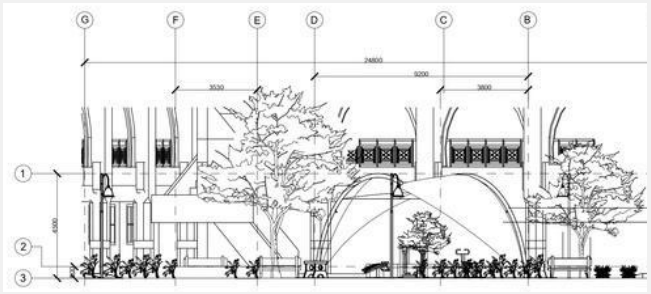


Figure 48: West Elevation, Courtyard B (Not to scale)
(Source: Authors, 2025)

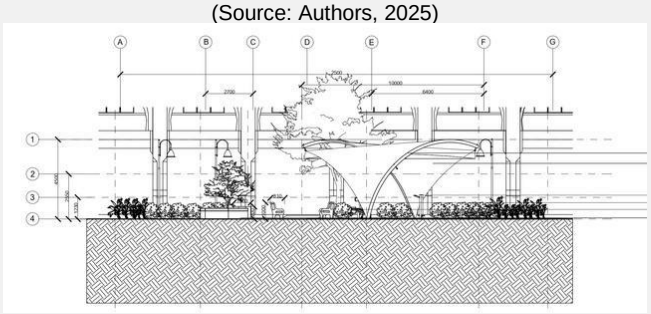


Figure 49: Section A-A, Courtyard B (Not to scale)
(Source: Authors, 2025)

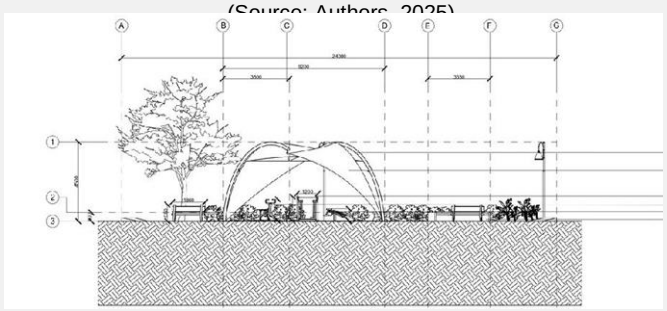
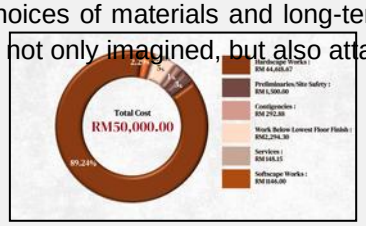


Figure 50: Section B-B, Courtyard B (Not to scale)
(Source: Authors, 2025)

10.0 COST ESTIMATION & SPECIFICATION

Weaving practicality into creativity is highly possible if one could ensure that every vision drawn can be grounded in cost reality, material efficiency, and budgetary balance. Through the design proposed, circulation challenges, underutilised spaces, and outdated elements are being addressed while being framed within a feasible financial logic. As the design aspires to flexibilize through various ideas these aspirations shall be translated into sustainable choices of materials and long-term value. In essence, the courtyard's vibrancy is not only imagined, but also attainable, resilient, and enduring over time.



This chart illustrates the total project cost of RM 50,000.00, highlighting the proportion allocated to various components. It provides an overview of how the budget is distributed across all courtyards and materials.

Figure 51: Overall Cost Percentage Breakdown (Source: Authors, 2025)

This pie chart details the cost allocation within Courtyard A, showing how expenses are divided among elements such as hardscapes, landscapes, and finishes. It emphasizes which components take up the largest share of the courtyard's budget.

Figure 52: Percentage Breakdown for Courtyard A (Source: Authors, 2025)

Muhammad Arsyad Irsyaduddin Sarbini, Mohd Fairullazi Ayob, Khairul Syifa' Ramlee,
Fatin Hazirah Rezuwan, Nurul Ain Shariful Ruzi, 'Ainan Nur 'Iffah Abd Hamid,
Sufian Hamat, Julaila Abdul Rahman, Asiah Abdul Rahim

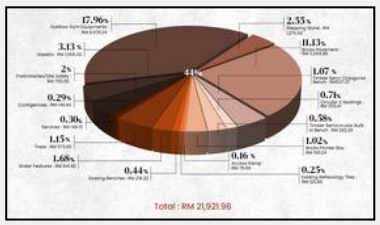


Figure 53: Percentage Breakdown for Courtyard B
(Source: Authors, 2025)

This chart presents the cost distribution specific to Courtyard B, illustrating how the budget is spread between landscape elements, seating, flooring, and other design components.

Figure 54: Cost Distribution for Courtyard A's Components)
(Source: Authors, 2025)

This diagram links the floor plan of Courtyard A with its cost allocation. It visualizes how different design elements, such as pathways, planting zones, and seating areas, contribute to the overall expenditure.

Figure 55: Cost Distribution for Courtyard B's Components)
(Source: Authors, 2025)

This figure connects Courtyard B's layout to its expenditure breakdown, showing where investment is concentrated across the space, from major structural works to smaller furnishing and landscaping details.

Figure 56: Cost Distribution by Material I
(Source: Authors, 2025)

This breakdown highlights the costs of materials used in the project (e.g., timber, steel, stone, and concrete). It helps identify the most cost-intensive materials and ensures material selection aligns with budget feasibility.

Figure 57: Cost Distribution by Material II
(Source: Authors, 2025)

A continuation of the material breakdown, this figure shows additional materials applied in the project. It reinforces how material choices affect the overall cost and demonstrates a balance between functionality, durability, and design intent.

CONCLUSION

This paper has presented the outcome of the study on the enhancement of the KAED Courtyard. The project has transformed the courtyard into a more vibrant and meaningful space that strengthens connectivity within the faculty. The design introduces improved accessibility, comfortable seating, and sustainable features, creating an environment that supports interaction, reflection, and community engagement. This revitalisation not only enhances the courtyard's practicality but also elevates its role as a central gathering place in KAED.

Overall, the enhancement of the KAED Courtyard demonstrates how thoughtful design can improve both functionality and atmosphere, benefiting the entire community. The upgraded space is now more inviting, inclusive, and adaptable, ensuring it continues to serve as an important part of campus life for years to come.

ACKNOWLEDGEMENT

This project has been a transformative experience for the members of Group 7, Sanggar Seri. The group is eager to apply the insights gained and the relationships built in future projects, with the aim of achieving outstanding results. The authors extend their sincere appreciation to the lecturers of BAQS 2300 Integrated Multi-Disciplinary Project, 2024/2025, at the Kulliyyah of Architecture and Environmental Design (KAED), IIUM, as well as to all other contributing parties and institutions for their significant role in making this project a success.

Essentially, the outcome of this project has been presented elsewhere by the team in the form of infographic poster and design model, and won two (2) Awards in the Exhibition of BAQS2300 Multi-Disciplinary Project session 2024/2025, as shown follows:
1. Award of People's Choice
2. Award of Dean's Choice

Lectures:
1.Mohd. Fairullazi Ayob
2.Asiah Abdul Rahim
3.Sufian Hamat
4.Julaila Abdul Rahman
5.Masidah Abdul Majid
6.Raja Intan Suhaylah Raja Abdul Rahman
7.Nur Ulfah Awatif Umairah Alias
8.Roziha Che Haron
9. Siti Noorfairus Che Abdullah

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2.	Muhammad Arsyad Irsyaduddin bin Sarbini	2217761
3.	Nurshazaratul Ain binti Zanal Abiddin	2314778
4.	Nurul Ain binti Shariful Ruzi	2315518
5.	Fatin Hazirah binti Rezuwan	2315800
6.	Fadzlina binti Fazlan	2217798
7.	Najah binti Rahmat	2217758
8.	Siti Hajar binti Salihin	2315114
9.	Hasya Hana binti Zulkarnain	2315008
10.	Qamarina binti Mohamed	2315934
11.	'Ainan Nur 'Iffah binti Abd Hamid	2314928
12.	Fatin Suhailah binti Suliaman	2314364
13.	Haidah Al Zahra binti Haidil Mustafa	2315292
14.	Adam Syamim bin Azmi	2315277
15.	Annur Yasmin binti Basuni	2314906
16.	Nurin Hayani binti Ruzi Haizad	2314280
17.	Khairul Syifa binti Ramlee	2217426

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