



PLANNING MALAYSIA:

Journal of the Malaysian Institute of Planners

VOLUME 23 ISSUE 2 (2025), Page 439 – 453

EXPLORING INTERIOR DESIGN WORK PROCESS IN GOVERNMENT BUILDING PROJECTS

Nur Adilla Abd Rahaman¹, Norfashiha Hashim², Arniatul Aiza Mustapha³

*^{1,2,3} College of Built Environment,
UNIVERSITI TEKNOLOGI MARA*

Abstract

Government building projects in Malaysia, primarily managed by the Public Works Department (JKR), play a vital role in creating functional, aesthetic, and sustainable environments that meet diverse user needs. Despite structured guidelines for design and construction, interior design works (IDW) often lack standardization and detailed attention, leading to suboptimal functionality, aesthetic inconsistencies, and compromised user satisfaction. This gap between design intent and execution underscores the need for a structured framework to address client values, prioritize meticulous detailing, and streamline processes to enhance IDW quality in government projects. This study aims to explore strategies to enhance IDW processes by addressing these deficiencies. A qualitative research approach was adopted, involving focus group discussions with 25 JKR architects, each with over 10 years of experience managing IDW in government buildings. Thematic analysis revealed significant inconsistencies in current IDW practices, particularly in the lack of meticulous detailing during planning and execution phases. These findings highlight an urgent need for standardized processes and enhanced detailing practices to ensure consistency and quality throughout project stages, from planning to post-construction. The needs to refine IDW processes and prioritizing detail-oriented practices are crucial for achieving higher standards and better alignment with modern design requirements. This approach will elevate user satisfaction and ensure functional, aesthetically pleasing, and user-centric environments. The study provides a foundational framework for improving interior design practices, promoting consistent and high-quality outcomes across government building projects in Malaysia

Keywords: Interior Design Works, Design Process, Government Building Projects

¹ Corresponding author. Email: nurad886@uitm.edu.my

INTRODUCTION

The enhancement of interior design practices in government building projects is a crucial aspect of creating functional, aesthetically pleasing, and sustainable public spaces. Its quality is a critical factor that can significantly impact user satisfaction (Aljunid et al., 2020). In the Malaysian context, the interior design industry is governed by the Architect Rule, which is overseen by the Board of Architects Malaysia (LAM) (Mustapha et al., 2021). However, due to the lack of clarity and understanding on the function of interior design works, this has led to a misconception perception on the importance of interior design works in building industry. Since government buildings in Malaysia are managed by the Public Works Department (JKR), all the guidelines for building works have been structured by the JKR, often with insufficient consideration of interior design.

Several studies have indicated that the quality of government service delivery in relation to government building projects is closely linked to user satisfaction (Adeosun, J.O. et al., 2024; Ameen, A. et al., 2020; Khalil, N. & Nawawi, A.H., 2009; Abdullah, H.S. & Kallianan, M., 2008). Factors such as ease of access, clarity of information, and the availability of communication options can significantly impact user satisfaction with government services (Adeosun, J.O. et al., 2024; Ameen, A. et al., 2020). This suggests that the quality of the interior design process and the overall delivery of government building projects can directly influence user satisfaction. One of prominent issue is the lack of user-centric design approach, where researchers have emphasize the involvement of end-user in the design process often leads to spaces that do not adequately meet the functional needs and preferences, which resulting in dissatisfaction (Bouncken, R. et al., 2021). Insufficient interaction with end users can result in the neglect of important design elements like comfort and usability, which can lead to insufficient attention to detail during the design and implementation stages. Ineffective lighting, mismatched materials, and poorly designed furniture arrangements can all have a detrimental effect on both functional and aesthetic value of a space (Curcic et.al., 2019).

Given the importance of interior design quality and user satisfaction in government building projects, this research aims to explore strategies towards the enhancement of interior design work practices in such projects. The study will explore the current practices and potential improvements that can be implemented to enhance the quality of interior design and improve user satisfaction in government building projects in Malaysia

LITERATURE REVIEW

Overview of the Concept of Interior Design Works

Interior design is the art and science of enhancing the interior spaces in creating a functional, aesthetical pleasing and harmonious environment for its users. It is a multifaceted discipline that encompasses the planning and execution of interior

spaces to enhance both functionality and aesthetics through various elements such as lightings, furniture, materials, furnishing, finishes and interior fittings. Its purpose is to create an efficient space planning by incorporating functionality, visual appealing through colour and texture as well as ensuring safety and regulatory compliance.

In the context of public buildings in Malaysia, interior design plays a crucial role in creating environments that are visually appealing and conducive to the well-being and productivity of their users (Abdul Munir, F.F. et. al., 2024). The principles of interior design, which include balance, harmony, rhythm, scale, and proportion, serve as foundational guidelines that inform the design process and ensure that spaces meet the needs of their occupants through understanding client needs, followed by concept development, space analysis and design implementation (Abd Rahaman, 2023; Adams, 2013).

Interior Design Works Process

In general, IDW process involves a series of structured phases that guide the creation of functional, aesthetic and buildability. The work process was initially developed from the RIBA Work of Plan as it is closely aligned with the architectural design process and has been widely adopted in the industry for years (Mustapha et al., 2021; Pilanawithana & Sandanayake, 2017). Since IDW involved works that are typically customized, intricate and high complexity, the needs of specialized IDW processes is vital (Mustapha et al., 2021). According to Interior Design Work Development Plan (IDWDP) by Mustapha, AA (2019) in Figure 1, IDW processes are consists of three key phases: the design phase, execution phase and delivery phase. The design phase comprises of all the preparation stages in design, such as programming (involving with developing design brief as well as feasibility studies), the schematic design stage, (involving with design concept and client approval) and the design development stage (involve with detailed design works and cost estimation).

In the execution phase, it focuses on the implementation and execution of the approved design (Mustapha et al., 2021). This includes the preparation of detailed construction documents, coordination with consultants and contractors, and monitoring the installation and construction processes (Noorhani et al., 2021). Meanwhile, during the delivery phase will be involved with post-occupancy evaluations to assess the project's performance and user satisfaction of the completed interior spaces (Metwally et al., 2019).

In Malaysia, government projects are managed by JKR and its interior design projects prioritize functionality, compliance with regulations, and cost-effectiveness, involving standardized processes, multiple stakeholders, and rigid timelines. In contrast, private projects focus on aesthetics, personalization, and innovation, offering greater flexibility, faster decision-making, and adaptability

in budgets and timelines. These differences reflect the distinct priorities and operational approaches in each sector.

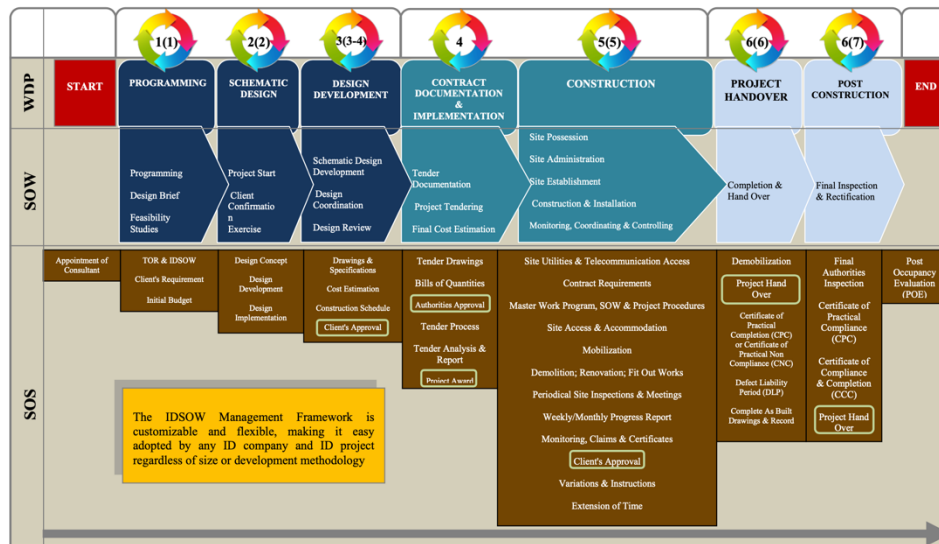


Figure 1: IDWDP Management Framework for Interior Design Project Delivery
Source: Mustapha, A.A (2019)

Project Implementation Work Process by the JKR Malaysia

The Jabatan Kerja Raya Malaysia (JKR) plays a pivotal role in the design and implementation of government buildings across the country. As a government agency, JKR is responsible for ensuring that all public infrastructure is designed, constructed and maintained to meet the needs of the Malaysian population while adhering to national standards and regulations. IDW in these projects are regulated under the Architects Act 1967 (Act 117) by the Lembaga Arkitek Malaysia (LAM) or known as the Board of Architects Malaysia, which ensures professionalism through accreditation and adherence to aesthetic, functional and safety standards. JKR Malaysia has outlined its Architecture Manuals with a comprehensive stage such as planning, design, procurement, execution and handover, typically using the conventional consultant method (JKR, 2015). These frameworks ensure high-quality, regulated implementation of interior design works in government projects.

Planning Phase

The planning phase is the crucial phase for the successful execution of interior design projects. The process begins by conducting feasibility studies to assess the requirements of the building, which include user needs, budgetary and site conditions evaluation. This phase involves the appointment of consultants as well

as gathering input from various parties including government officials, end-users and community representatives (Jamaludin & Razali, 2021). The data collected during this phase informs the overall design strategy and helps JKR align its objectives with national policies and sustainability goals (Khalid et al., 2019).

Design Phase

During this phase, JKR has outlined the process starting from the pre-design meeting until the preparation of technical drawings by the Head of Planning Team (HOPT). Along this phase, design aspect comprises of the identifying design direction, preparation of design proposal, materials selection, client's approval, preliminary design cost and specification, detail drawing preparation and design verification (Figure 2). Despite the structured and systematic approach outlined in the current JKR flowchart for design work processes, a notable gap exists in the lack of detailed guidance specifically addressing the scope of interior design work. While the flowchart comprehensively covers general architectural and construction phases, it often overlooks critical nuances unique to interior design, such as precise material selection, furniture specifications, and the integration of user-centric design elements. Overlooked of these elements may lead to ambiguities during project execution that resulting in misaligned of expectations of client values and the outcome quality of interior spaces. Furthermore, disregarding the importance of interior design scope may lead to misjudgement of aesthetic and functional values tailored to specific government building needs, hindering an effective public environment. Addressing this gap by incorporating a more detailed interior design component in the workflow would enhance project outcomes and align with modern standards and client expectations.

Procurement Phase

The procurement phase in JKR workflow involves a critical stage where the necessary resources, contractors and suppliers are secured to execute government building projects. This stage ensures all the approved design are well translated into reality through a transparent and structured process that aligns with public procurement regulations and JKR standard policy. The key steps in the procurement phase involves preparing tender documents, tender advertisement, tender evaluation, tender award and contract signing. Lacking of precise specification for interior design works such as finishes, furniture and fixtures, can lead to disputes and comprises in quality. Therefore, a robust procurement phase within its workflow will ensures that the government building projects are executed effectively in term of quality, cost-efficiency and adherence to public sector governance.

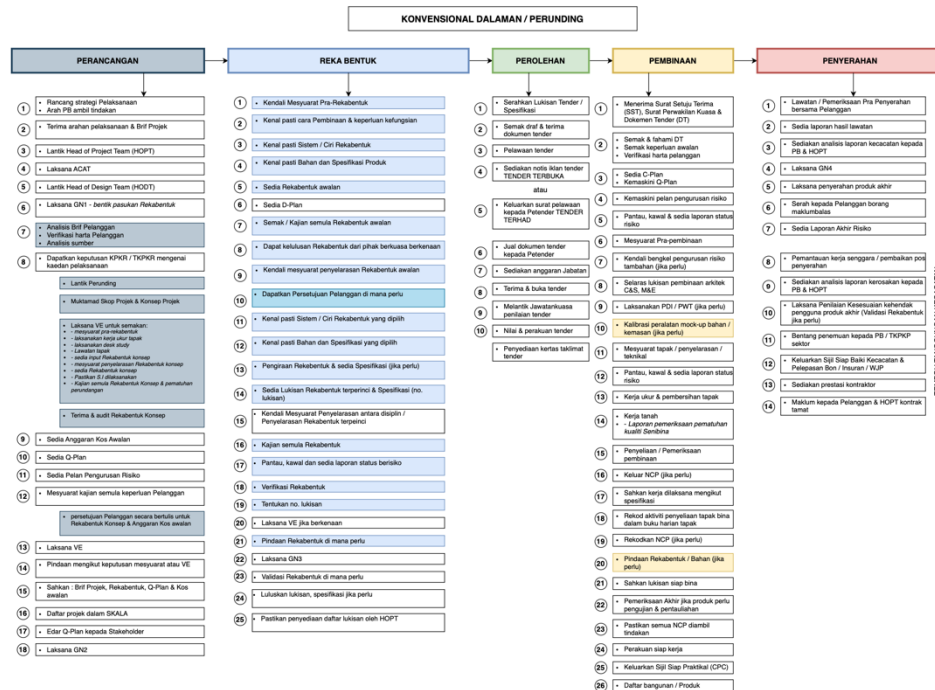


Figure 2: The Conventional Consultant Procurement – Flowchart of Implementation Work Process

Source: JKR Manual Seni Bina (2015)

Execution Phase

The execution phase involves the actual construction and implementation of the interior design plans. JKR manages the construction process to ensure compliance with the approved designs and specifications (Figure 2). This includes regular site inspections and quality control measures to maintain high standards of workmanship (Firdaus, 2024). JKR also collaborates with contractors and suppliers to procure materials that meet both aesthetic and performance criteria, focusing on durability and sustainability (Tan et al., 2023). The agency's commitment to quality is reflected in its rigorous adherence to safety standards and building codes throughout the construction process.

Evaluation Phase

Upon project completion before handover, JKR will be conducting an evaluation phase to assess the effectiveness of the interior spaces in meeting its intended goals. This includes gathering feedback from users regarding their satisfaction with the space functionality and aesthetics. Evaluation process is important for identifying areas for improvements (Jamaludin & Razali, 2021; Khalid et al.,

2019). Additionally, JKR places significant emphasis on the maintenance of government buildings, ensuring that interior spaces remain functional and aesthetically pleasing over time (Khalid, M.K.A, et. al., 2024; Yasin et al., 2022).

RESEARCH METHODOLOGY

This study conducts a qualitative research methodology to explore the work processes of interior design practices in government building projects. The qualitative approach specifically employing focus group discussions expecting to gather an in-depth insight from 25 informants among professional architects at JKR who are actively involved in interior design projects for government buildings. This methodology is particularly suited for exploring the complexities and distinctions of interior design practices, as it allows for the collection of rich, contextual data that quantitative methods may overlook (Akyildiz & Ahmed, 2021).

Focus group discussions were preferred as the primary data collection method due to its ability to facilitate dynamic interactions among participants, enabling them to share experiences, opinions, and insights in a collaborative environment. This approach encourages participants to engage in dialogues, which can lead to the emergence of themes and ideas that may not surface in one-on-one interviews (Omar et al., 2020; Zairul.M, 2019). The focus groups were structured to include a diverse range of JKR architects, ensuring a variety of perspectives on the interior design processes and challenges faced in government building projects. This diversity is crucial for capturing the multifaceted nature of interior design practices and understanding how different experiences influence design decisions (Akyildiz & Ahmed, 2021).

The data collection initially starts by developing a semi-structured discussion guide, outlining the main topics to be explored, and user-centred design practices. This guide served as a framework for the discussions while allowing flexibility for the informants to introduce additional relevant topics (Akyildiz & Ahmed, 2021). Focus group session was moderated by a trained facilitator who ensured that all informants had the opportunity to contribute and that the discussion remained focused on the research objectives (Omar et al., 2020).

Following the focus group discussions, the recorded sessions were transcribed and analysed using qualitative data analysis, the Atlas t.i 24. This software facilitated in organizing data, coding of responses and identification of strategies through themes within the discussions (Zairul. M, 2019). The analysis process involved an iterative approach, where initial codes were generated based on key phrases and concepts, followed by the development of broader themes of specific interior design work process for government building projects.

ANALYSIS AND DISCUSSION

Figure 2 illustrated the workflow process of interior design works practices from six groups of government building project categories, managed by the JKR Malaysia. This discussed project is mapped through the existing workflow of the JKR Conventional Consultant procurement project stages; Planning, Design, Procurement, Execution (Construction) and Evaluation (Handover). From this figure, it shows that these six types of building has outlined a significant differences of process and tasks. The analysis and discussion of the gaps were discussed under the specific themes of issues pertaining to current practices of interior design work in government building project, highlighting areas for improvement and opportunities to enhance the efficiency and effectiveness of the current processes.

1. Variation in Interior Design Scope Across Project Types

The figure reveals distinct processes tailored to various government building categories, such as sports facilities, heritage buildings and institutional buildings. While this categorization reflects an attempt to address the unique needs of each building type, research identified significant inconsistencies in how interior design aspects are addressed across these categories.

- a) Administrative and Commercial Buildings – the process includes essential elements such as schematic design and client approvals. However, a notable gap lies in the absence of standardized guidelines for integrating key interior design components, such as furniture layouts, finishes and user-centric designs. This oversight may result in interiors that lack of cohesion or fail to fully meet the functional and aesthetic needs of their users.
- b) Sports and Recreational Facilities Buildings - the process It does not prioritize the critical aspects such as user comfort, materiality and the functionality of interior spaces. The lack of focus may lead to underwhelming interiors that do not effectively support the intended activities or meet the expectations of stakeholders.
- c) Special and Heritage Buildings – unlike the other categories, project such as parliamentary or historical buildings exhibits more detailed interior design workflows. This reflects the complex and unique requirements of these spaces, which often demand intricate designs to preserve cultural heritage or accommodate high-profile usage. Despite this, the processes for these buildings are not consistently applied across other project types, which creates a significantly disparity.

The inconsistency in scope of interior design work practices create in disparities in the quality and comprehensiveness of interior designs. This lack of uniformity can lead to mismatched outcomes, with some projects failing to align

with user expectations or functional needs. Addressing these inconsistencies by establishing more standardized and detailed guidelines for interior design processes across all building types would ensure higher-quality and more equitable outcomes.

2. Insufficient Detailing in Design Development

The current design process includes schematic and design development stages but lacks explicit guidance in these key areas. Notably, there is no clear framework for furniture layout planning, material selection or user-centric design. Furniture layout is critical for creating functional spaces, however its integration into overall design is overlooked. Similarly, the absence of a standardized approach to sustainable and culturally relevant material selection misses opportunities to align designs with environmental goals and cultural values. Furthermore, minimal focus on engaging end-users limits the ability to tailor spaces to specific needs, reducing usability and satisfaction. Addressing these gaps by incorporating furniture layout, material selection and user-centric design as standard practices could significantly enhance the cohesive and functionality of interior spaces.

3. Limited Attention to Interior Aspects During Construction

The process for most building types does not clearly specify how interior design aspects are monitored and implemented during the construction phase, resulting in potential gaps that could compromise the quality and consistency of the final interior spaces. Activities such as “mock-ups of key furniture” and “coordination of regulations and guidelines” were only discovered being incorporated during the pre-construction stage for special buildings. These steps help to ensure that the design elements are well-coordinated and aligned with the project’s goals before construction begins. However, for the other building types, these critical preparatory activities are absent, leading to potential inconsistencies during execution and an increased risk of misalignments.

In addition to this, it was noticed that site supervision of interior design elements during construction receives limited emphasis in most processes. Key aspects such as monitoring the installation of interior finishes, overseeing furniture placement, and ensuring compliance with the approved design are not explicitly addressed. This lack of oversight during the construction phase increases the likelihood of deviations from the intended design, resulting in spaces that may not fully meet functional or aesthetic requirements.

Establishing thorough and consistent procedures for interior design supervision across all building types is crucial to addressing this issue and guaranteeing the successful completion of interior spaces that are aesthetically pleasing, useful and high quality.

The lack of standardized procedures for supervising and implementing interior design elements during the construction phase introduces a significant risk of compromising the overall quality of the interiors. Without a clear guidelines and consistent monitoring practices, the integrity of the design vision can be lost, and the final outcomes may fail to meet the expectations of clients and end-users. To address this, establishing detailed and uniform protocols for interior design supervision across all building types is essential to ensure the successful realization of high-quality, functional and visually appealing interior spaces.

4. Variability in Client Involvement

The process places emphasis on client approval stages, particularly in administrative and commercial buildings, where client input is essential to the design process. However, the discussions revealed significant variations in the level of client engagement across different project types. While some projects involve clients extensively in approving designs and materials, ensuring that the final product aligns with their expectations, other exhibit minimal client involvement, particularly in categories such as sports and recreational facilities.

In projects with active client participation, the collaborative approach helps refine the design to better meet functional and aesthetic requirements, fostering a sense of ownership and satisfaction among stakeholders. Conversely, in projects where client engagement is limited, there is a higher likelihood of misalignments between the final design outcomes and the actual needs or preferences of the users. This is particularly evident in sport facilities, where the lack of client inputs during key decision-making stages often leads to functional or aesthetic shortcomings in the interior spaces.

Establishing a consistent framework for client engagement across all project types would help address this disparity. By ensuring that clients are actively involved in interior design decisions at appropriate stages, the process could produce more user-centered and satisfactory outcomes, ultimately enhancing the functionality and appeal of government building interiors. This approach would not only bridge existing gaps but also foster stronger collaboration and alignment among all stakeholders.

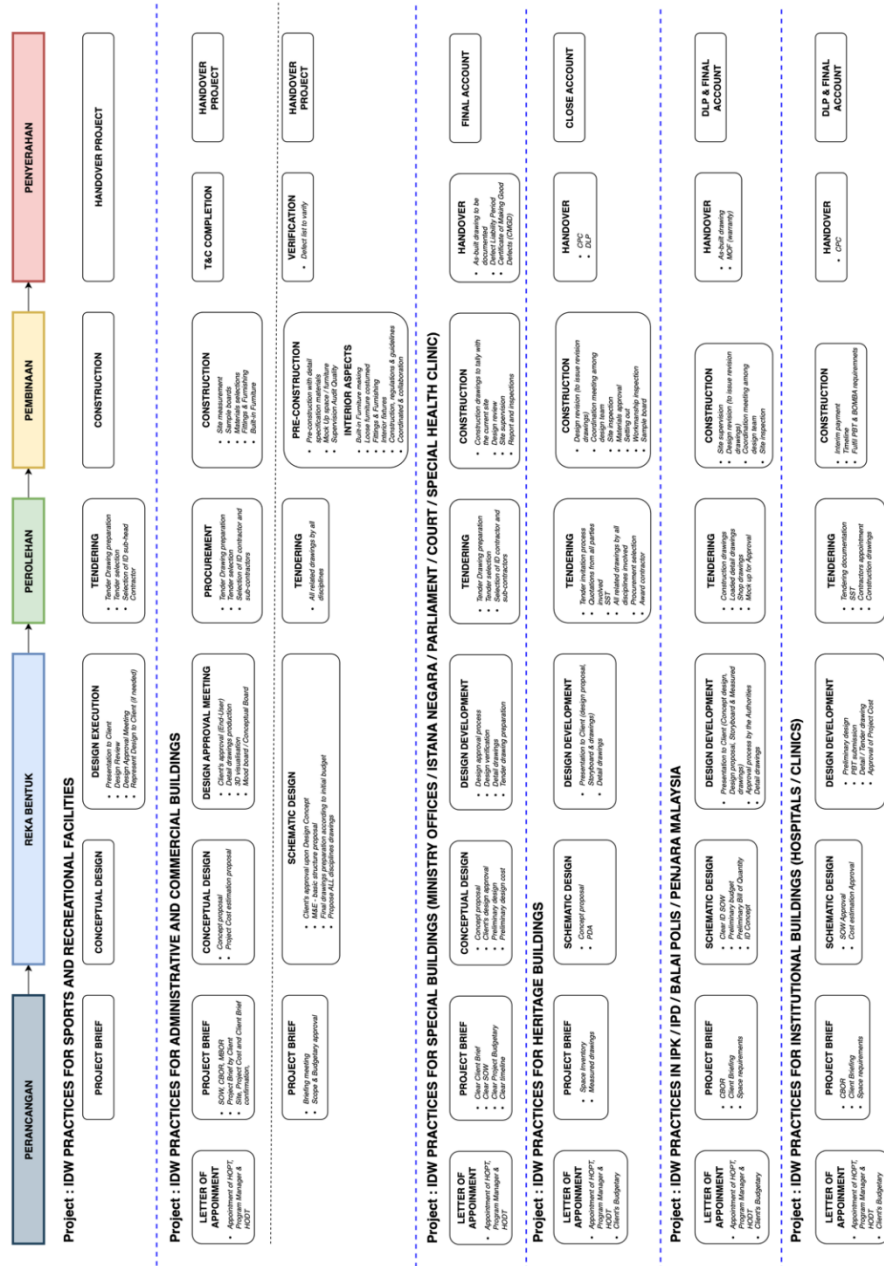


Figure 3: The Conventional Consultant Procurement – Interior Design Work Process for government buildings in Malaysia
Source: Author's findings from FGD

5. Lack of Post-Occupancy Evaluation (POE)

One significant gap identified is the absence of a post-occupancy evaluation (POE) stage in the interior design process for government building projects. This is critical stage for assessing whether the interior design meets the functional, aesthetic, and user satisfaction goals after project completion. POE is a structured mechanism to evaluate whether the interior design can be successfully meets its intended goals, such as functionality, aesthetic appeals and user satisfaction. The omission limits the ability to identify areas for improvement or refine design strategies for future projects.

Incorporating POE stage in the process would provide a systematic approach to gathering feedback from users and stakeholders. The feedbacks received could offer valuable insights of the impact of interior design towards building's operational needs, enhancing user comfort and aligning with the client's objectives. For instances, POE could reveal issues such as inefficient space layouts, insufficient lighting or inappropriate material choices that were not apparent during the design or construction phases. Addressing these defects in subsequent projects would ensure a continuous cycle of improvement.

A POE would also allow JKR to document best practices and lessons learnt, encouraging a culture of adaptability and learning. This could lead to the development of more user-centered designs and the establishment of benchmarks for interior design excellence in government building projects. Incorporating a POE step into the workflow will guarantee more effective and efficient use of government resources while also improving the quality and efficacy of subsequent initiatives.

DISCUSSION

As a recommendation to identified gaps in the interior design work process for government building projects, several strategies for improvement will be proposed.

1. Standardize The Interior Design Process

A need to standardize the process across all building types that involves developing a comprehensive and standardized scope of work that ensures essential elements such as furniture layout planning, material and finishes selections as well as user-centered designs are consistently integrated into every project. A unified approach would help eliminate disparities and promote uniform quality across different categories of government buildings.

2. Enhanced Detailing in The Design Development Phase

It is a very crucial stage for interior design projects. This strategy can be achieved by incorporating specific steps for planning furniture layouts, selecting sustainable materials and engaging with end-users to tailor the interior spaces to

their unique requirements. This degree of specificity would guarantee that design results are both practical and in line with client's expectations.

3. Improved Construction Monitoring

This monitoring procedure is essential to ensure design fidelity. Explicit procedures should be introduced for supervising the implementation of interior design elements during the construction phase. This entails supervising the installation of furniture, finishes, and other design elements to guarantee adherence to the authorised blueprints and quality requirements.

4. Consistent Client Engagement

This engagement is necessary to align project outcomes with stakeholder needs. Clear guidelines should be established to ensure that clients are actively involved in key interior design decisions across all building types. This would foster collaboration and enhance satisfaction with the final results.

5. Introducing Post-Occupancy Evaluation

The process should include POE stage in order to assess the performance of interior spaces after project completion. Feedbacks on usability, design, and user satisfaction would be gathered throughout this assessment, allowing for ongoing development and the incorporation of lessons learnt into subsequent initiatives.

CONCLUSION

In conclusion, the research highlights critical gaps in the current workflows for interior design practices in government building projects managed by JKR, particularly in areas such as standardized processes, detailed design development, construction monitoring, client engagement and post-occupancy evaluations. These gaps reveal inconsistencies in the quality and effectiveness of interior design outcomes across different building types, which can lead to misalignments with user expectations, functionality, and aesthetic goals. By addressing these challenges through the adoption of standardized scopes, enhanced detailing, structured evaluation mechanisms, and consistent stakeholder collaboration, the quality of interior design in government buildings can be significantly elevated. These improvements would not only enhance the functionality and user satisfaction of public spaces but also align with broader national goals for sustainability, cultural identity, and efficient resource utilization, ensuring that government projects set benchmarks for excellence in design and execution.

REFERENCES

Abd Rahaman, N., Che Ani, A. I., Sairi, P. S., Abdul Wahab, N., Ya'akob, N. A., Hassan, M., & Ali, N. A. (2023). A Thematic Review on The Preferred Client Values Associated with Interior Design Works. *3rd International Conference on the Built*

- Environment and Engineering (IConBEE)* 2022, 2881(1), 012008.
<https://doi.org/10.1063/5.0168613>
- Abdullah, H. S., & Kalianan, M. (2008). From Customer Satisfaction to Citizen Satisfaction: Rethinking Local Government Service Delivery in Malaysia. *Asian Social Science*, 4(11), 87-92. <https://doi.org/10.5539/ASS.V4N11P87>
- Abdul Munir, F. F., Said, S., Khalid, N., & Mohamad, A. A. (2024). Biophilic Design Elements Preferences Among Government Officers in Putrajaya, Malaysia. *PLANNING MALAYSIA: Journal of the Malaysian Institute of Planners*, 22(6), 567-577.
- Adams, E. (2013). The Elements and Principles of Design: A Baseline Study. *International Journal of Art & Design Education*, 32(2), 157-175.
<https://doi.org/10.1111/j.1476-8070.2013.01761.x>
- Adeosun, J. O., Agbele, T. O., Dada, E. O., & Oyeyemi, S. O. (2024). Evaluation of End Users' Participation in the Design and Delivery of Public Building Projects in Ekiti State, Nigeria. *LAUTECH Journal of Civil and Environmental Studies*, 12(1), 65-72. <https://doi.org/10.36108/laujoces/4202.21.0170>
- Akyildiz, S., & Ahmed, K. (2021). An Overview of Qualitative Research and Focus Group Discussion. *International Journal of Academic Research in Education*, 7(1), 1-15. <https://doi.org/10.17985/ijare.866762>
- Aljunid, S., Alias, A. A., Md Dali, M., Razak, M. R., Azmi, M. N., Awang, M. K., & Mohamed, N. (2020). Occupants' Satisfaction Towards Interior Design Quality at Inpatient Units of Public Hospitals in Malaysia: A Sustainable Development Framework. *International Journal Environment and Sustainable Development*, 19(3), 320-331. <https://doi.org/10.1504/IJESD.2020.108167>
- Ameen, A., Tarhini, A., Reppel, A., & Anand, A. (2020). Examining Relationship Between Service Quality, User Satisfaction and Performance Impact in The Context of Smart Government in UAE. *International Journal of Electrical and Computer Engineering (IJECE)*, 10(6), 6026-6033.
<https://doi.org/10.11591/ijece.v10i6.PP6026-6033>
- Bouncken, R. B., Clauß, T., Fredrich, V., & Kraus, S. (2021). Coworking Spaces: Understanding, Using, and Managing Sociomateriality. *Business Horizons*, 64(1), 119-130. <https://doi.org/10.1016/j.bushor.2020.09.010>
- Curcic, A., Ruzic, D., & Nikolic, M. (2019). Effects of Color in Interior Design. 7th *International Conference Contemporary Achievements in Civil Engineering*.
- Firdaus, N. (2024). The Potential of Atrium Design to Maximize The Passive Cooling Effect for Low-Rise Public Buildings in Malaysia. *Journal of Electrical Systems*, 20(4s), 1528-1543. <https://doi.org/10.52783/jes.2195>
- Jabatan Kerja Raya Malaysia. (2015). *Manual Seni Bina JKR*.
- Jamaludin, A., & Razali, M. (2021). Identification of Business Intelligence In Managing Maintenance Management For Government Office Buildings in Putrajaya. *International Journal of Academic Research in Business and Social Sciences*, 11(6). <https://doi.org/10.6007/ijarbss/v11-i6/10216>
- Khalid, E., Abdullah, S., Hanafi, M., Said, S., & Hasim, M. (2019). The Consideration of Building Maintenance at Design Stage in Public Buildings. *Facilities*, 37(13/14), 942-960. <https://doi.org/10.1108/f-04-2018-0055>

- Khalid, M. K. A., Said, S., Ahmad, S., Mohamad, A. A., Abdullah, S., & Khalid, N. (2024). Evaluating The Impact of Design Failure on the Perak Tengah District Mosque, Perak, Malaysia. *PLANNING MALAYSIA: Journal of the Malaysian Institute of Planners*, 22(6), 207-221.
- Khalil, N., & Nawawi, A. H. (2009). Performance Analysis of Government and Public Buildings via Post Occupancy Evaluation. *Asian Social Science*, 4(9), 103-112. <https://doi.org/10.5539/ass.v4n9p103>
- Legal Research Board. (2023). *Architects Act 1967 (Act 117) & Rules*. International Law Book Services.
- Lembaga Arkitek Malaysia. (2020). *Standards and Guidelines for Interior Design in Malaysia*. Lembaga Arkitek Malaysia.
- Metwally, D., Shehata, N., Badea, A., & Shabeeb, A. (2019). How Ethical Leadership Shapes Employees' Readiness to Change: The Mediating Role of an Organizational Culture of Effectiveness. *Frontiers in Psychology*, 10. <https://doi.org/10.3389/fpsyg.2019.02493>
- Mustapha, A. (2019). *Framework for Interior Design Work Development Plan (IDWDP) in Malaysian Context*. (Thesis PhD). Universiti Teknologi MARA.
- Mustapha, A., Mohamad, M., & Noorhani, N. (2021). A Framework of An Interior Design Work Delivery Process. *International Journal of Sustainable Construction Engineering Technology*, 12(3). <https://doi.org/10.30880/ijscet.2021.12.03.031>
- Noorhani, N., Mustapha, A., & Adnan, H. (2021). Project management roles and task for interior designer during design phase. *International Journal of Sustainable Construction Engineering Technology*, 12(5). <https://doi.org/10.30880/ijscet.2021.12.05.014>
- Omar, S., Kovalan, K., & Bolong, J. (2020). Information Security Awareness Among Youth in Klang Valley: A Focus Group Discussion. *International Journal of Academic Research in Business and Social Sciences*, 10(16). <https://doi.org/10.6007/ijarbss/v10-i16/8302>
- Pilanawithana, N. M., & Sandanayake, Y. G. (2017). Positioning the Facilities Manager's Role Throughout the Building Lifecycle. *Journal of Facilities Management*, 15(4), 385-400. <https://doi.org/10.1108/JFM-06-2016-0024>
- Tan, X., Mahyuddin, N., & Zaid, S. (2023). Efficacy of Energy Conservation Measures and Building Energy Intensity of a Multi-Building Complex in Malaysia. *E3S Web of Conferences*, 396, 03004. <https://doi.org/10.1051/e3sconf/202339603004>
- Yasin, M., Zin, R., Nagapan, S., Zakaria, M., Wahi, N., Tharim, A., Kamal, N. M., & Hasmori, M. A. (2022). A Factor Analysis to Establish a Group of Causes of Deferred Maintenance at Malaysia's Public University Buildings. *IOP Conference Series Earth and Environmental Science*, 1022(1), 012019. <https://doi.org/10.1088/1755-1315/1022/1/012019>
- Zairul, M. (2019). Introducing ARC (ask, record and confirm) As the New Validating Technique in Real-Time. *IOP Conference Series Earth and Environmental Science*, 385(2019), 012010. <https://doi.org/10.1088/1755-1315/385/1/012010>

Received: 28th January 2025. Accepted: 10th March 2025