

Reframing Accessibility as a Risk Management Concern in Malaysian Heritage Buildings

¹Muhammad Aizuddin Mohd Noor, ²Kushairi Abdul Rashid*, ³Nurul Fadzila Zahari,
⁴Izatul Farrita Mohd Kamar

^{1,2,3,4}Faculty of Built Environment, Universiti Teknologi MARA, Perak Campus

aizuddinm0@gmail.com¹, *kusha575@uitm.edu.my², nurul998@uitm.edu.my³,
izatul739@uitm.edu.my⁴

*Corresponding author

Received: 30 June 2026; Accepted: 20 July 2026; Published: 1 September 2026

ABSTRACT

Heritage buildings represent important cultural assets that preserve historical identity while supporting tourism, education, and public engagement. As publicly accessible places, they should provide safe, equitable, and independent access for all users, including persons with disabilities (PwDs), older adults, and individuals with temporary mobility limitations. However, accessibility in heritage buildings has traditionally been evaluated through regulatory compliance and physical accessibility audits, with limited consideration of how accessibility deficiencies may affect user safety, building usability, and heritage management. This conceptual paper argues that accessibility should be understood not only as a design requirement but also as a risk management concern. Drawing upon literature on accessibility, heritage conservation, and risk management, the paper examines how common accessibility deficiencies may contribute to safety, operational, governance, and social inclusion risks within heritage environments. Supporting observations from Malaysian heritage buildings are used to illustrate how barriers such as raised thresholds, improvised ramps, and inadequate accessible facilities influence independent mobility and the overall visitor experience. The paper proposes a conceptual perspective that reframes accessibility from a compliance-oriented approach towards a risk-based understanding of heritage buildings. By integrating accessibility, conservation, and risk management concepts, it establishes a theoretical foundation for future accessibility assessment and more informed decision-making among heritage managers, policymakers, and conservation practitioners. Ultimately, the paper contributes towards safer, more inclusive, and sustainable heritage tourism by encouraging a more comprehensive understanding of accessibility within the heritage-built environment.

Keywords: Heritage Buildings, Accessibility, Risk Management, Heritage Conservation, Inclusive Heritage Tourism.



ISSN: 2550-214X © 2026. Published for Idealogy Journal by UiTM Press. This is an Open Access article distributed under the terms of the Creative Commons Attribution-No Commercial-No Derivatives License(<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

1 INTRODUCTION

Heritage buildings represent significant cultural assets that preserve historical identity while supporting tourism, education, and community activities. As public-facing facilities, they should provide safe, equitable, and independent access for all users, including persons with disabilities (PwDs), older adults, and individuals with temporary mobility limitations (Chidiac & Reda, 2025). However, many heritage buildings continue to exhibit accessibility deficiencies such as stepped entrances, uneven

pathways, narrow circulation routes, inaccessible sanitary facilities, inadequate wayfinding systems, and limited emergency evacuation provisions.(Chidiac & Reda, 2025; Ruiz-Rodrigo et al., 2024)

Existing studies have primarily examined accessibility from the perspectives of regulatory compliance, universal design implementation, and accessibility audits(Sáez-Pérez & Marín-Nicolás, 2023).While these studies have successfully identified physical barriers, accessibility deficiencies are seldom interpreted as risk factors that may influence user safety, building usability, operational management, and the long-term sustainability of heritage assets. (Sáez-Pérez & Marín-Nicolás, 2023)

From a risk management perspective, an inaccessible feature represents more than a design deficiency. It may increase the likelihood of falls, restrict independent movement, delay emergency evacuation, expose custodians to legal and reputational consequences, and reduce the inclusiveness of heritage building (Barış & Müezzinoğlu, 2024). Despite these implications, there remains limited synthesis of accessibility-related risk factors within the heritage building context. Consequently, heritage managers lack an evidence-based reference for identifying and prioritizing accessibility risks before developing structured assessment and decision-support tools.(Flego & Tei, 2025). Accordingly, this conceptual paper draws upon existing scholarly literature to conceptualize the accessibility risks affecting heritage buildings

1.1 Problem Statement

Current literature predominantly focuses on accessibility compliance, universal design implementation, accessibility audits, and inclusive tourism within heritage settings. These studies have improved understanding of physical barriers and highlighted the importance of accessible heritage environments(Sáez-Pérez & Marín-Nicolás, 2023). However, limited attention has been given to interpreting accessibility deficiencies as measurable risk factors capable of generating safety, legal, financial, reputational, operational, and social inclusion consequences.(Seila et al., 2025)

Furthermore, existing accessibility frameworks generally evaluate compliance rather than risk exposure. Consequently, they provide limited support for prioritizing interventions according to the severity of their potential consequences. This review therefore addresses an important knowledge gap by systematically identifying and synthesizing accessibility-related risk factors that can support future risk assessment models and the development of an Accessibility Risk Index.(Sáez-Pérez & Marín-Nicolás, 2023)

2 THEORY

2.1 Heritage

Heritage is defined as the inheritance of tangible and intangible assets from the past (Graham & Graham, 2002; Zahari, Ani, & Rashid, 2020). This heritage is preserved and conserved for the future generation to explore experience and refer to (S N Harun 2017; Yung and Chan 2011). Conservation of heritage can be achieved through several methods which are reconstruction, restoration, rehabilitation, adaptive, and preservation (Yusoff, Dollah, and Kechot 2013). From the past, Malaysia's history has been enriched with multiple influences from outsiders who came in and conquered. The impact can be seen with the monument they left us, the architectural style of a building once they invade us, and many more. This marked a tremendous history that cannot be replaced but to is viewed by the younger generation, so they do not forget our history. Due to this history, many of our buildings, sites and monuments had been gazette as heritage or national heritage by our government. Many National Heritage Buildings become tourist attractions from all over the world. It becomes heritage tourism.

2.2 Disability and Accessibility

A disabled person was defined as a person or an individual with disabilities such as an impairment of problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action, while a participation restriction is a problem experienced by an individual in involvement in life situations (World Health Organization, 2007). Disability is thus not just a health problem (Rahim et al., 2010; Zahari, Ani, Rashid, et al., 2020). It is a complex phenomenon, reflecting the interaction between features of a person's body and features of the society in which he or she lives.

Accessibility sometimes refers to the characteristic that products, services, and facilities can be independently used by people with a variety of disabilities (Bringolf, 2008). Accessibility is a general term used to describe how easy it is for people to get to, use, and understand things (Nordic Council, 2009). Accessibility is defined closely with Accessible and Inclusive Design and used in more of a generic manner (Iwarsson & Ståhl, 2003). It is arguably easier to use accessibility when interviewing non-designers or non-technical people. According to the Department of Statistics Malaysia, 814,966 persons with disabilities were registered in 2025, representing approximately 2.38% of the national population. Learning disabilities accounted for 40.01% of registrations, followed by physical disabilities at 33.25%, visual impairment 8.27% and the lowest is speech impairment 0.51% as depicted in figure 1, highlighting the growing need for inclusive environments and equitable access to public facilities and tourism destinations. As the population ages and awareness of disability rights continues to expand, accessibility within tourism environments becomes both a social responsibility and an economic opportunity.

2.3 Risk in Accessibility

Accessibility risk in heritage buildings is the risk that an inaccessible feature causes harm, exclusion, delayed escape, or governance failure, rather than merely failing a design standard. The literature increasingly treats this as a risk-management problem because inaccessible heritage environments can produce safety, legal, financial, reputational, operational, and social inclusion consequences for both users and custodians (Flego & Tei, 2025)

2.3.1 Safety Risk

The most immediate accessibility risk is physical injury exposure created by stepped entrances, uneven paths, narrow circulation routes, inaccessible toilets, poor doors, and limited evacuation access (Chidiac & Reda, 2025). In museum-heritage settings, building access is a critical link in the accessibility chain, and entrance barriers are especially common, with inadequate signage found in 96% of sampled buildings and door-related problems in 88% (Marín-Nicolás et al., 2023).

Safety risk also includes loss of autonomous movement and emergency delay. Heritage accessibility research in Quebec shows that some "solutions," such as staff-operated platform lifts or removable ramps, still leave users dependent on others and unable to move independently (Ruiz-Rodrigo et al., 2024) That dependence can create insecurity and concrete situations of discomfort or risk, especially when access requires assistance that may not be immediately available (Ruiz-Rodrigo et al., 2024) For risk framing, this matters because limited independence is itself an operational vulnerability before it becomes an accident.

2.3.2 Governance Risk

A second layer is governance risk, where the hazard comes from weak rules, vague standards, and poor enforcement rather than from heritage fabric alone. Malaysian legal analysis identifies inconsistencies with the CRPD, vague or narrow legal definitions, absence of mandatory access audits, and limited enforcement powers as current weaknesses that hinder realization of accessibility

rights (Azlina & Zahari, 2025). Earlier Malaysian heritage work adds that there is a lack of supportive guidance between the National Heritage Act and the Persons with Disabilities Act, leaving professionals without a clear method for balancing conservation with barrier-free access (Meng Hooi & Mohd Yaacob, 2019)

Recent evidence suggests the main risk is often noncompliance, not unavoidable heritage conflict. A 2025 study found that only 19% of reported “true” barriers were attributed to preservation-access conflict, while 64% arose from standard compliance failures and 17% from lack of clarity or specificity in standards (Chidiac & Reda, 2025). That finding is important for a risk model because it shifts priority toward auditability, enforcement, and interpretive consistency. Broader built-environment work makes the same point differently: legislation can exist while practice remains opaque, weakly operationalized, and poorly aligned with lived experience (Jackson, 2018)

2.3.3 Inclusion Risk

Qualitative heritage studies show that barriers restrict leisure and social activities and can undermine the identity-related meaning of heritage access for disabled users (Ruiz-Rodrigo et al., 2024) This is why accessibility risk should be read as a participation risk, not just a circulation risk.

That exclusion risk is unevenly distributed across disability groups. Multiple studies show that adaptations are concentrated on mobility access, while visual, hearing, sensory, and especially cognitive needs remain less addressed (Chidiac & Reda, 2025; Chwaja et al., 2025; Kruczek et al., 2024) public-building research more broadly, societal attitudes, ableism, and underinvestment also function as barriers, meaning that some accessibility risks are embedded in institutional behavior rather than the building alone (Mohapatra et al., 2024)

2.3.4 Prioritization Risk

Method papers on heritage buildings show that many barriers are actually removable, with barrier-removal feasibility above 75% across sampled museum buildings and above 80% in another support-tool study (Marín-Nicolás et al., 2023) That means the core risk problem is often not impossibility, but failure to identify which barriers create the highest combined safety, autonomy, and inclusion burden first.

A strong accessibility-risk paragraph for a PhD paper, then, should argue that the highest-risk conditions are those that combine high exposure, high consequence, and weak governance response: entrances, routes, doors, toilets, wayfinding, and evacuation features that affect daily use; standards that are unclear or unenforced; and access measures that provide nominal entry without independent use (Flego & Tei, 2025; Marín-Nicolás et al., 2023) In that narrower sense, accessibility risk is not a broad moral concern but a measurable pattern of preventable hazards and exclusion concentrated in specific building elements and management failures.

This study integrates three complementary perspectives. First, accessibility theory provides the basis for understanding equitable access, independent movement, and safe use of the built environment. Second, heritage conservation theory recognises that cultural significance and authenticity must be preserved while accommodating contemporary public use. Third, risk management theory provides a mechanism for interpreting accessibility deficiencies as measurable risks based on their likelihood and consequences. The integration of these perspectives shifts accessibility from a purely compliance-oriented concept towards a risk-based governance perspective.

3 METHODOLOGY

This research is focused on the discovery of literature related to the Risk-based accessibility in heritage buildings perspective. This paper was carried out in addition to literature and random

observation in heritage building. As this subject is common, the literature referred to and examined starts in the year 1970. The quest for literature is by publishing research journals such as Emeralds, Elsevier, Sage and by reading the current laws, guidelines, and actions relating to senior citizens, PwDs and heritage buildings. Terms used to locate reading literature are divided into three categories: Heritage Building, Accessibility and Risk-Based Accessibility. These words are used to evaluate the path toward this analysis.

4 RESULT AND DISCUSSION



Figure 1 The high sill that prevented the person with disabilities to get to the other side of the building.
(Source: Author, 2026)

A heritage building entry with an elevated doorway sill of about one foot is shown in Figure 1. Wheelchair users, elderly persons, and people with mobility disabilities face a considerable physical obstacle due to the excessive level difference, even though the entry is still usable for guests who are able-bodied. Users' autonomy and dignity are diminished by such a vertical block, which makes it impossible for them to travel independently between spaces and necessitates outside assistance.

Entrance thresholds should offer seamless transitions between areas from an accessibility standpoint. Overly large door sills impede accessible circulation and raise the risk of wheelchair instability, trips and falls. Accessibility enhancements should be carefully incorporated to protect heritage values while guaranteeing inclusive access, even though heritage buildings frequently conserve original architectural characteristics for conservation purposes.

This barrier's existence illustrates the continuous struggle between accessibility and cultural protection. Sensitive interventions like detachable threshold bridges or hidden platform solutions may strike a balance between conservation goals and universal accessibility instead of totally eliminating the original architectural element. This finding emphasises accessibility as a significant risk factor affecting tourists with disabilities' capacity to independently explore historic structures.



Figure 2 The additional ramp provided as facilities passage for the person with disabilities.
(Source: Author, 2026)

An extra metal ramp was put in place to bridge the height difference at the building entry, as seen in Figure 2. This ramp's installation is an attempt to increase accessibility without irreversibly changing the historical fabric. Nevertheless, rather than an inbuilt accessible feature, the approach seems to be an impromptu intervention.

The ramp's short length creates a high gradient that may surpass required accessibility standards, even if it allows wheelchair users to navigate the entrance threshold. For manual wheelchair users, steep ramps demand more physical exertion and might be dangerous in wet weather. Additionally, user safety may be jeopardised by the small landing space and sudden surface shift.

This illustration shows that universal accessibility is not always achieved by merely building a ramp. To guarantee safe, comfortable, and autonomous usage, accessibility interventions within heritage buildings should meet both technical accessibility criteria and conservation principles.



Figure 3 Entrance ramp with handrails leading to an accessible toilet facility
(Source: Author, 2026).

The entrance to an accessible lavatory with two handrails and a short ramp is shown in Figure 3. Handrails on both sides show consideration for accessibility needs and give persons with mobility issues more stability. This facility exhibits a more inclusive design approach when compared to Figures 1 and 2.

Nevertheless, there is still a discernible vertical level difference between the internal floor surface and the external ramp at the entry even with the handrails. Wheelchair manoeuvrability may be impacted by such discontinuities, and ambulant users are more likely to stumble. Continuous level access from the entry through the interior circulation area should be provided via accessible sanitary facilities.

This figure highlights that rather than focusing on discrete design aspects, accessibility should be assessed as a whole user journey. Every element of the route must work together to provide independent access in order to comply with accessibility principles.



Figure 4 Restricted wash basin clearance within an accessible toilet
(Source: Author ,2026).

The measurements of an accessible toilet's washbasin are shown in Figure 4. Wheelchair users don't seem to be able to comfortably place themselves underneath the fixture due to the available knee space beneath the basin. Users' independence during handwashing activities is diminished by the limited approach space, which requires them to stay away from the basin.

In order to accommodate wheelchair users without requiring awkward body placement or assistance, accessible sanitary facilities should have sufficient horizontal and vertical clearances. Even in cases where accessible restrooms are officially provided, inadequate proportions reduce usage.

This finding shows that the functional usability of accessible facilities should be taken into consideration in addition to their existence. The ability of users to independently use the facilities as intended determines how effective accessible infrastructure is.



Figure 5 Raised threshold interrupting accessible external pedestrian route
(Source: Author, 2026).

A raised threshold across the circulation route interrupts an exterior pedestrian pathway, as seen in Figure 5. The elevated barrier presents an obstruction that prevents continuous passage even when the surrounding walkway looks to be fairly flat. Such discontinuities increase the risk of instability and require extra work for those who use wheelchairs, mobility scooters, or walking aids.

One of the core ideas of universal design is continuous accessible routes. Route usability can be severely impacted by even very tiny vertical impediments, especially if they are frequently found across a heritage site. These obstacles also impact older folks, parents pushing strollers, and guests with transient mobility impairments.

The complete visitor experience should be considered while doing an accessibility assessment, as this figure illustrates. To guarantee inclusive participation for all tourists, heritage tourism venues should offer smooth movement from arrival, external circulation, entrance, internal facilities, and exit.

CONCLUSION

Traditionally, the provision of physical amenities like ramps, elevators, and accessible restrooms as well as adherence to technical standards have been used to evaluate accessibility. These methods are still crucial, but they only give a partial picture of the accessibility issues that heritage buildings face. This essay makes the case that accessibility should also be considered from a risk management standpoint, acknowledging that inadequacies in accessibility have repercussions that go beyond mere inconvenience. These flaws could jeopardise user safety, limit independent mobility, make buildings less useful, impede social inclusion, and put heritage custodians at risk for operational, legal, and governance issues.

This study establishes a conceptual viewpoint that expands the present knowledge of accessibility within cultural sites by combining ideas from risk management, heritage conservation, and accessibility. The conversation shows that accessibility barriers should be viewed as interrelated hazards that need to be systematically identified, assessed, and managed throughout the visitor journey rather than as discrete design flaws. This viewpoint promotes a change from reactive compliance to proactive, risk-informed decision-making that strikes a balance between inclusive access and historic conservation.

Policymakers, local authorities in charge of maintaining public heritage assets, conservation practitioners, and heritage managers can all benefit from the suggested viewpoint. In addition to encouraging safer and more inclusive visitor experiences, viewing accessibility via a risk management lens can enable more strategic planning, intervention prioritising, and long-term heritage sustainability.

By empirically identifying and validating accessibility risk domains and creating structured risk assessment methods appropriate for heritage buildings, future research should expand on this conceptual work. Such initiatives will support inclusive heritage tourism in Malaysia and lead to greater evidence-based accessible management.

FUNDING STATEMENT

No funding was received for this research.

AUTHOR CONTRIBUTIONS

All authors played equal contributions towards the production of this paper.

CONFLICTS OF INTEREST

The author declares no potential conflict of interest with respect to the research, authorship, and/ or publication of this article.

REFERENCES

- Azlina, N., & Zahari, M. (2025). Public Building Accessibility in Malaysia: Legal Challenges and The Rights of Persons with Disabilities. *JOURNAL OF MUAMALAT AND SOCIETY*, 19(2), 46–61.
- Bariş, B., & Müezzinoğlu, M. K. (2024). Diyarbakır Hasan Pasha Inn: A thorough evaluation of risk analysis and accessibility concerns. *Journal of Design for Resilience in Architecture and Planning*, 5(3), 409–425. <https://doi.org/10.47818/drarch.2024.v5i3140>
- Bringolf, J. (2008). Universal Design: Is it Accessible? *Plurality and Diversity in Design*, 1(2), 45–52.
- Chidiac, S. E., & Reda, M. A. (2025). “True” Accessibility Barriers of Heritage Buildings. *Buildings*, 15(9). <https://doi.org/10.3390/buildings15091528>
- Chwaja, K., Chwaja, B., Marczak, I., & Kruczek, Z. (2025). Accessibility of Tourist Attractions for Individuals with Disabilities as a Factor in the Development of Inclusive Tourism: Example of the Świętokrzyskie Region—Poland. *Sustainability* (Switzerland), 17(9). <https://doi.org/10.3390/su17093853>
- Flego, C., & Tei, A. (2025). Boosting accessibility and inclusiveness in tourism and cultural heritage sites: benchmarking best-practices. In *Journal of Cultural Heritage Management and Sustainable Development* (Vol. 16, Number 7, pp. 274–293). Emerald Publishing. <https://doi.org/10.1108/JCHMSD-11-2023-0193>
- Graham, B., & Graham, B. (2002). Urban Studies Heritage as Knowledge: Capital or Culture? <https://doi.org/10.1080/0042098022012842>
- Harun, S. N. (2017). Heritage Building Conservation in Malaysia: Experience and Challenges. *The 2nd International Building Control Conference 2011*, 20, 41–53. <https://doi.org/10.1016/j.proeng.2011.11.137>
- Iwarsson, S., & Ståhl, a. (2003). Accessibility, usability and universal design--positioning and definition of concepts describing person-environment relationships. *Disability and Rehabilitation*, 25(2), 57–66. <https://doi.org/10.1080/dre.25.2.57.66>
- Jackson, M. A. (2018). Models of Disability and Human Rights: Informing the Improvement of Built Environment Accessibility for People with Disability at Neighborhood Scale? *Laws*, 7(1), 10. <https://doi.org/10.3390/laws7010010>
- Kruczek, Z., Gmyrek, K., Ziżka, D., Korbiel, K., & Nowak, K. (2024). Accessibility of Cultural Heritage Sites for People with Disabilities: A Case Study on Krakow Museums. *Sustainability* (Switzerland), 16(1). <https://doi.org/10.3390/su16010318>
- Marín-Nicolás, J., Sáez-Pérez, M. P., Tajani, F., & Sica, F. (2023). Analysis of the Accessibility Improvement Index in Urban Areas through Heritage Buildings Used as Museums—Case Studies in the Region of Murcia (Spain). *Sustainability* (Switzerland), 15(18). <https://doi.org/10.3390/su151813517>
- Meng Hooi, P., & Mohd Yaacob, N. (2019). Accessibility for Physically Challenged Persons in Heritage Buildings. In *24 Journal of Design and Built Environment* (Vol. 19, Number 1).
- Mohapatra, S., Maiya, G. A., Nayak, U. U., Benny, L., Watson, J., Kinjawadekar, A., & Nandineni, R. D. (2024). Centering Social Justice and Equity in Research on Accessibility to Public Buildings for Individuals with Mobility Disabilities: A scoping review. *F1000Research*, 13, 930. <https://doi.org/10.12688/f1000research.153797.1>
- Nordic Council. (2009). *Accessibility to Cultural Heritage - Nordic Perspectives* (O. Sørmoen, Ed.). Nordic Publication.
- Rahim, A., Amirah, N., & Samad, A. (2010). Accessible Built Environment for the Elderly and Disabled in Malaysia: Hotels as Case Studies. *Journal of Construction in Developing Countries*.
- Ruiz-Rodrigo, A., Morales, E., Lakoud, M., Riendeau, J., Lemay, M., Savaria, A., Mathieu, S., Feillou, I., & Routhier, F. (2024). Experiencing accessibility of historical heritage places with individuals living with visible and invisible disabilities. *Frontiers in Rehabilitation Sciences*, 5. <https://doi.org/10.3389/fresc.2024.1379139>
- Sáez-Pérez, M. P., & Marín-Nicolás, J. (2023). Design of a Support Tool to Improve Accessibility in Heritage Buildings—Application in Case Study for Public Use. *Buildings*, 13(10). <https://doi.org/10.3390/buildings13102491>

- Seila, F., Selim, G., & Newisar, M. (2025). A Systematic Review of Factors Contributing to Ineffective Cultural Heritage Management. In *Sustainability* (Switzerland) (Vol. 17, Number 1). Multidisciplinary Digital Publishing Institute (MDPI). <https://doi.org/10.3390/su17010366>
- World Health Organization. (2007). *The World Health Report: a safer future: global public health security in the 21st century*.
- Yung, E. H. K., & Chan, E. H. W. (2011). Problem issues of public participation in built-heritage conservation: Two controversial cases in Hong Kong. *Habitat International*, 35(3), 457–466. <https://doi.org/10.1016/j.habitatint.2010.12.004>
- Yusoff, Y. M., Dollah, H., & Kechot, A. S. (2013). Perlindungan harta warisan: Keberkesanan usaha pemuliharaan dan pemeliharaan dalam pembangunan negara National development and the protection of heritage property: An appraisal of the Malaysian experience. *GEOGRAFIA OnlineTM Malaysian Journal of Society and Space*, 9(2), 64–77.
- Zahari, N. F., Ani, A. I. C., & Rashid, R. A. (2020). Profiling disabled facilities and accessibility provided in national heritage buildings in Malaysia. *Journal of Critical Reviews*, 7(5). <https://doi.org/10.31838/jcr.07.05.18>
- Zahari, N. F., Ani, C., Rashid, A. A., Hashim, R., & Taharuddin, H. S. (2020). Disabled Independent Living: From the Perspectives of Built Environment. In *Ideology Journal* (Vol. 5, Number 2).