Five Accessibility Challenges in Access Auditing Mosque Designs

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Abstract
Mosques are frequently visited because it is a place for worshipping God for devoted Muslims and its communal qualities. The lack of accessibility creates physical barriers for PwDs and the elderly and has discouraged them from joining congregational prayers. Mosque accessibility is a prolonged issue that needs mitigation hence the access challenges. Five accessibility challenges are discussed by assessing the Mosque’s typical design and its facilities to its level of accessibility. Conclusively, the five access challenges reviewed in Access Auditing of mosque’s cases should be the focus for renovation and upgrading to be an inclusive Mosque.

Keywords: Mosque Accessibility; Persons with Disability (PwDs); Universal Design; Access Audit.

1.0 Introduction
The Mosque is among frequently visited building typology because of its divine place for worshipping God in congregational for devoted Muslims and its communal qualities. A Mosque is a facility that is often visited by People with Disabilities (PwDs) and elderly Muslims other than the general public, as devoted Muslims attend to perform their five daily prayers in congregation and to learn more about Islam. The lack of seamless access at Mosque creates physical barriers for PwDs and elderly, which have discouraged them from visiting mosques for congregational prayers and other related community activities. Mosque accessibility has been a prolonged issue, and it is a problem that needs mitigation between design consultants, the local authorities, and the Mosque’s facilities management personnel in providing and maintaining mosque facilities for accessibility purposes.

As coined by Hussein and Yaacob (2012) and by Kaur and Tan (2018), the Malaysian Persons with Disabilities Act 2008 defines PwDs as individuals with long-term physical, mental, intellectual or sensory impairments. The definition, the PwDs, which in interaction with various everyday obstacles, may prevent their full and active participation in daily activity and the economy. Apart from the PwDs Act, the Malaysian Ministry of Women, Family and Community Development has published the ‘Plan of Action for People with Disabilities 2016-2022’ by outlining ten (10) strategic cores that matches ten (10) goals of the Incheon Strategy with Core Strategic 1 (Goal 3 Incheon Strategy) on increase accessibility of PwDs mobility and quality of life for a productive and inclusive community (Asiah, Azila et
Mosque accessibility will ensure full community participation, including the marginal groups of the PwDs and elderly, to be socially inclusive through public built environment.

1.1 Aim and Objectives of the study
This study aims to identify the common accessibility obstacles and provide recommendations or innovation design solutions to accommodate accessible design that complements within the Islamic views. The objectives are, firstly, to analyze the level of accessibility in mosques design by Access Auditing simulation method, and secondly, to investigate the common identified accessibility challenges that are typical for Mosque design and that derived from access items in the Access Audit checklist developed.

2.0 Literature Review

2.1 Mosque Design; Modern and Heritage Mosque
Mosque usually is the epicenter of the idea of an Islamic city planning, where the interconnectedness between Din (religion) and Madinah (city) reflecting supervise human activities with the notion of submissiveness. For the Muslim community, mosque is a necessity in fulfilling the preservation of five essentials of masjid al-shar’iah of faith, self, intellect, lineage, and property, in its respective ways (Asiah, Azila, et al., 2015). According to JAKIM, Malaysian mosques classify into five general groups, and mosques usually are the principal, state, and some private funded mosques (Asiah, Azila, et al., 2015; MS2577:2014, 2014; Utaberta, Niya et al., 2017).

Issues in modern mosque design are listed as follows; (i) the architectural identity; (ii) conceptual form and structure; (iii) the position and location of mosques; (iv) the use and function of space planning; (v) the safety and security of mosque spaces; (vi) the administration and economy; (vii) the congregation and users especially concerning women, children, PwDs, and elderly (Nangkula, Hafsa et al., 2015). Asif, Utaberta et al. (2019) has described, the potential of urban mosques in compact city, that is to adapt with its surrounding environment, considers lifestyle changes, innovative use of space, optimizing and expanding functionality by maintaining aesthetic of the original structure; regardless of activity pattern, space usage, and functional efficiency. Asiah and Nur Amira (2014) conveyed that a provision of suggesting an accessible route for existing mosque could keep the cost of renovation to a minimum, where refurbishment categorized by essential areas that are highly accessible, examples of the parking area, entrance, prayer hall, toilets, and ablution areas as well as wayfinding. While Mahsa, Utaberta et al. (2015) suggested accessibility aspect of approach to building, the horizontal and vertical circulation and mosque facilities and amenities.

Abdul Kadir, Jamaludin et al. (2019) emphasize the issue of accessibility in heritage buildings that are important to be addressed as 'heritage' as it valued as a significant aspect for the Malaysian tourism industry. As some Mosques are enlisted as National Heritage building that were built in the 70's and 80's and holds historical significance has also been coping with the demand of providing accessibility for PwDs and elderly. Mosque typology is a priority as it is most visited and used by the public daily, whether historical or heritage and big or small usage capacity. Overcoming the difficulties faced by PwDs requires interventions to remove environmental and social barriers due to lack of access and no facilities provided (Asiah & Nur Amira, 2014) in various heritage building typology needed accessibility adaptation in the conservation of heritage buildings (Abdul Kadir et al., 2019).

2.2 Community Inclusion and Mosque Accessibility
There is a negative conception of public acceptance in Malaysian society that still exists nowadays as portrayed by Kaur and Tan (2018) that public acceptance relationship between PwDs and 'able-bodied' shows that the public still has a low acceptance of disabilities in the community. The PwDs perceive their acceptance by the public community as unsatisfactory, where the public is overly sympathetic towards them and has not given equal treatment as 'able-bodied' counterparts, are viewed negatively and possibly bullied. It was also argued previously by Hussein and Yaacob (2012) on the notion of the social model of disability was suggested throughout the Act, as defining disability as evolving. However, the PwDs Act 2008 is perceived as a charity and as a welfare basis according to the existing medical model that focuses on impairments and negative perceptions.

Concerning mosque functions, many main mosque has opened up their doors into organizing public events such as religious talks and seminars, weddings and solemnization events that requires the public' participation within the community. A mosque shall be universally designed to cater all kinds of users, including PwDs, the elderly, and children, as there are mosques that offer complementary functions such as nursery/daycare, religious school (madrasah) and bazaar (souq) for business purposes and accommodation. As elaborated by Asiah, Azila, et al. (2015), mosque institution is also devised towards providing supports for the PwDs through its activities and number of programs are among the elements assessed in increasing mosques’ ratings. The importance of providing accessibility is to give the PwDs an equal opportunity for them to perform congregational prayers in respect of helping them perform their obligation as other devoted Muslims (Asiah & Nur Amira, 2014; Utaberta et al., 2017).

Universal Design is the basis of creating accessibility in the built environment and practically in mosque environment as many researchers (Fletcher, 2016; Heylighen, Linden et al., 2017; Kurniawan, 2010; Mahsa et al., 2015; Nur Amira, Ismail et al., 2018a; Shah, Shar et al., 2018; Utaberta et al., 2017) has reinterpreted it within its definition of ‘design of products and environments usable by all people to the greatest extent possible, without the need for adaptation or specialized design.’ Several researchers within the local context, such as (Kadir & Jamaludin, 2013; Mahsa et al., 2015), have also regarded Universal Design as a significant component for social sustainability in sustaining well-being, safety, and accessibility in encouraging participation and social interaction within a livable community. Universal Design may cater to the needs of diverse users for a lifetime. It can contribute by sustaining the built environment.
throughout life-changing event (Abdul Kadir & Jamaludin, 2018) and can also be developed as a Corporate Social Responsibility by companies and clients by constructing for the public (Asiah, Naziaty et al., 2015).

3.0 Methodology

The methodology approach is qualitative that will be participatory of actual PwDs of four (4) disabilities category with interviews to identify accessibility obstacles and narrative by explanatory of checklist items (Creswell, 2012). The qualitative research design is content analysis of regulatory documents relating to Universal Design and Mosque building typology with access audit checklist to measure the level of accessibility according to technical access designs, drawings and documents (Walliman, 2011) such as PwDs Act 2008, UBBL 34A, MS1184, MS2577 and JAKIM design guidelines as previously laid out in detail by these local researchers (Hussein & Yaacob, 2012; Kadir & Jamaludin, 2012a; Kamarudin, Ariff et al., 2014; Kamarudin, Hashim et al., 2012; Mahsa et al., 2015; Maidin, 2012; Nur Amirah, Ismail, et al., 2018a; Nur Amirah, Ja’afar et al., 2018b; Yusof & Jones, 2016). The findings analyzed within the capacity of a case study or a ‘bounded system’ of a specific case example of various state and heritage Mosque in Malaysia (Groat & Wang, 2002; Merriam, 2009).

3.1 Access Audit Method and Access Audit Checklist

While the method of conducting Access Audit simulation is describe and physically conducted by (Asiah, Azila, et al., 2015; Asiah & Nur Amirah, 2014; Hashim, Samikon, et al., 2012; Kadir & Jamaludin, 2012a, 2012b; Kamarudin et al., 2012; Nur Amirah, Ja’afar et al., 2018) in particular at several case studies of state and heritage Mosques in Malaysia. This study further investigates the Mosque’s level of accessibility by Access Audit by using assessment tool of Access Audit Checklist, that was initiated by referring to items in UBBL 34A and MS1184:2014 (access audit manual & access audit checklist for buildings, 2018) and the time taken to conduct an Access Audit at one mosque. Under Mosque building typology, there were five (5) accessibility challenges discussed by assessing the Mosque’s typical design and its facilities to its level of accessibility.

4.0 Findings and Discussion

4.1 Access Audit simulation at Mosque Case Study

Access Audit simulation will usually begin with an introductory meeting with the Access Auditing team that consist of expert Access Auditors, and actual PwDs of four (4) identified disability category, namely; wheelchair users; physically challenged or elderly with mobility issue; the blind and the deaf; with go-along interviews with PwDs on the aspect of access, barriers and communication issues with the management and caretakers of the Mosques.
### 4.2 Identifying possible accessible route on plan

Some mosque audited has provided the team with drawings of building plans where we can identify to create an accessibility map based on the findings from access auditing. When the AutoCAD drawings are not available from consultants, some building plans of mosque are hand-sketch, and some are diagrams of spaces to establish an access route.

![Fig. 3](image1.jpg)

Fig. 3. (a) Testing existing ramp; (b) Inaccessible main entrance; (c) Inaccessible steps main entrance. (Source: Author)

### 4.3 Access Audit Checklist, Report and Rating

The access audit checklist developed from MS1184:2014 (access audit manual & access audit checklist for buildings, 2018) is used to determine the level of accessibility at each mosque. The checklist has four (4) sections to evaluate the building access, that are, 1) Horizontal Circulation; 2) Vertical Circulation; 3) Supporting Facilities and Amenities; and; 4) Additional Facilities and Amenities. Furthermore, this checklist provides scoring to calculate the percentage for Star Rating of Universally Designed mosque. Some snapshots of the checklist and report shows how the level of accessibility is measured, and the data findings to meet the objective of synchronizing all case studies of Mosques to the five (5) common identified access challenges that are i) the entrance, ii) the ablution (wudu') area, iii) the toilet, iv) the prayer hall and v) the path of travel & wayfinding.

![Fig. 4](image2.jpg)

Fig. 4. (a) Mapping access route of the National Mosque, KL; (b) Sketching access map of Kg. Keling Mosque, Melaka; (c) Diagram of space plan of Kota Kinabalu State Mosque. (Source: Author)

### Table 1: Access Audit Checklist

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<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Score</th>
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<tbody>
<tr>
<td>a) Ramp Accessible</td>
<td>存在无障碍坡道</td>
<td>1</td>
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<tr>
<td>b) Ramp Available</td>
<td>坡道可用</td>
<td>1</td>
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<tr>
<td>c) Ramp Condition</td>
<td>坡道状况良好</td>
<td>1</td>
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<tr>
<th>Item</th>
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<tr>
<td>Accessibility Rating</td>
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<tr>
<td>a) Limited space allowance</td>
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<td>b) Small entrance section</td>
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<td>c) Small entrance section</td>
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<td>d) Small entrance section</td>
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<td>d) Small entrance section</td>
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**Note:**
- Accessibility Rating: 1 = Accessible, 0 = Not accessible
- Vertical Circulation: Vertical access, 2 = Accessible, 1 = Semi-accessible, 0 = Not accessible
- Supporting Facilities and Amenities: 2 = Accessible, 1 = Semi-accessible, 0 = Not accessible
- Additional Facilities and Amenities: 2 = Accessible, 1 = Semi-accessible, 0 = Not accessible

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Table 1. A matrix of the state and heritage Mosques audited in compared to their accessibility level based on the 5 identified common accessibility challenges

<table>
<thead>
<tr>
<th>State &amp; Heritage Mosque</th>
<th>PwDs</th>
<th>1) The entrance</th>
<th>2) The ablution (wudu’) area</th>
<th>3) The toilet</th>
<th>4) The prayer hall</th>
<th>5) The path of travel (internal) &amp; Wayfinding</th>
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<tr>
<td>The National Mosque, Kuala Lumpur</td>
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<td>Pasir Pekan Mosque, Kota Bharu</td>
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<td>Sultan Haji Ahmad Shah Mosque @ IIUM Gombak Mosque</td>
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Legend: Wc – Wheelchair User; E/Pc – Elderly / Physically Challenged; B – Blind; D – Deaf. (Source: Author)
A summary from data analysis, a further access design challenge solution and recommendation are to focus upon the followings:

1. Wayfinding and signage
   • To propose five standing accessible maps entrance showing access with international access logo.
   • To initiate wayfinding strategies using directional signage, pictogram outside and within corridors, prayer hall, toilets, lift.
   • Application of interactive Information panel to show the location and access of ablution, toilet, and prayer hall.

2. Entrance Ramp
   • Entrance ramp should be designed according to specification as the ramp can be dangerous if it is too steep.

3. Ablution Area & Accessible Toilet
   • To propose portable ablution stations at ground level and stool for elderly persons.
   • Providing accessible toilet for PwDs wheelchair users on the ground floor.

4. A clear, seamless path of travel and approval of praying on carpeted areas for wheelchair.
   • Providing hydraulic lift for old building if necessary.
   • For Blind and Deaf persons, it is not mainly the physical access issue, but the communication and visual access issues involve that is lacking.

5.0 Conclusion

Conclusively, the five access challenges reviewed in all case study of mosque should be the focus for renovation and upgradings for the mosque management for them to be an inclusive Mosque and claiming to be socially inclusive. Inclusive mosque shall consider all diversity of users for them to visit, performing congregational prayers and socially inclusive for any other Mosque’s functions such as a place for meetings, gatherings, educations, celebrations, and even for medical services. Much consideration has still to be taken to attention if accessibility would cover all aspects and all disabilities to be entirely social inclusive mosque environment. These five accessibility design challenges have to be mitigated first either for new mosques’ design or mosques, which would like to renovate and upgrade their facilities.

Acknowledgement

This research paper acknowledges research and consultancy projects as well as Access Audit Workshops in the built environment conducted by KAED Universal Design Unit (KUDU), KAED, IIUM, and lead by Prof. Dato’ Sri Ar. Dr. Asiah Abdul Rahim, with the facilitation of the principal author in conducting the access auditing workshop training in Malaysia with funding from various government agencies. The findings and results are throughout ten (10) years of the Access Audit Workshops that focus on the Access Audit of Mosque Building Typology throughout Malaysia.

References


