

MOSQUE ARCHITECTURE

PRESENT ISSUES AND FUTURE IDEAS

عمارة المسجد:

قضايا الحاضر و أفكار المستقبل



Editors

Prof. Mashary A. Al Naim | Dr. Hani M Al Huneidi | Dr. Noor Hanita Abdul Majid



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عمارة المساجد



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INCLUSIVE BUILT ENVIRONMENT FOR MALAYSIAN HERITAGE *MASJID*

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INTRODUCTION

MANY studies stress on the vulnerability of inaccessible environment to the disabled people which highlights the importance of user-friendly or barrier-free environment in today's world (Nur Amirah, A.S. *et al.*, 2018; Asiah, A.R. *et al.*, 2015). With the enforcement of Persons with Disabilities Act 2008, government wishes to provide PwDs with better public transport facility, amenities and services, better health, education, information and technology, habilitation and rehabilitation, employment opportunities, as well as improved access to sports, leisure, and cultural life activities (*The Star*, 2010).

The number of existing public buildings that have done modifications as approved by the standards codes is very few (Chen *et al.*, 2007) which, some of the modifications are not correctly built according to the codes; therefore, they are risky to the users. Imrie (2000) argues that policies, practices, and values of professionals who create the built environment are the main contributors to the barriers in architecture. *Masjid* accessibility has been an issue and it is a problem that needs to be mitigated between design consultants and heritage policy officers in rationalizing upgrading heritage masjid facilities for accessibility purposes.



RESEARCH BACKGROUND

Masjid is a place for worshipping Allah the Almighty for devoted Muslims. Historically, cities were developed around *masjid* which acts as the society centre of the community (Aisha, 2009). *Masjid* also has many other functions besides being a place of worship since the time of Prophet Muhammad (PBUH) where it is a place for conducting meetings, gatherings, educations, celebrations, and even for medical services.

The Inclusive *Masjid*

Widely in Malaysia today, many main *masjid* has opened up their doors into organizing public events such as religious talks and seminars, weddings receptions, and solemnization events that requires the public' participation. There are some *masjids* that offer complementary functions such as nursery/day care, religious school (*madrrasah*) and bazaar (*souq*) for business purposes and accommodation. Therefore, a *masjid* should be universally designed to cater all kinds of users, including the Persons with Disabilities (PwDs), the elderly, and children. The importance of providing accessibility is to give the PwDs an equal opportunity for them to perform congregational prayers together with other devoted Muslims in respect of helping them perform their obligation (Utaberta, N. *et al.*, 2017; Asiah, A.R., and Nur Amirah, A.S., 2014).

Accessibility Concerns in Heritage Building

Heritage buildings has been coping with the demand of providing accessibility for PwDs and *masjid* is a priority as it is most visited and used by the public at a daily basis whether historical or heritage, and big or small usage capacity.

Some previous research has shown that in comparing Malaysia and Singapore to the developed countries such as United Kingdom and Australia which had established the Guideline in Improving Accessibility in Heritage Environment, as to improve the equality of PwDs right in accessing the heritage building. The policies in Malaysia regarding PwDs and accessibility in Heritage Environment may not reach the level of that in developed countries such as United Kingdom and Australia. This matter of policies should be taken seriously by government as it will ensure the equal right to enjoy and learn from historic building and places and in the same time it will increase the market for tourism (Zahari, N.F. *et al.*, 2016; Mohd Marsin, J., 2014).



Overcoming the difficulties faced by PwDs requires interventions to remove environmental and social barriers (Asiah. A.R. and Nur Amirah. A.S., 2010). At the moment, the disable people are being neglected from this group due to lack of access and facilities provided. Additional features on having access and facilities for PwDs shall not change the whole view of the heritage building but complimenting with the important activity in conserving the heritage buildings (Yaacob, N.M. and Hashim, N.R., 2007).

Accessibility and Tourism

Currently, one of the highest tourist attraction contributors in Malaysia is the heritage building sector and becomes popular due to its diverse historical background and culture. It attracts local and international tourists to visit. However, the lack of facilities provided especially for PwDs has hindered its future prospects to become globally popular. This matters could hinder the tourist to bring their elderly to visit the building again. Furthermore, the current conservation guidelines and requirements are not comprehensive enough to address the disabled accessibility aspects as important criteria in conserving the heritage building which open to the public. For further recommendation, the author suggests to analyse the act, manual, or guidelines of heritage in Malaysia purposely for disabled accessibility (Zahari, N.F. *et al.* 2016).

The national heritage should be viewed, explored, and enjoyed by everybody without discriminating anyone. Insufficient of provision for disable facilities in heritage act has caused barrier to the disable people to enjoy and visit the heritage buildings and sites. After further searching, there were several acts and regulation associated to accessibility in relation to heritage buildings and *masjid* in particular. These documents are broken down into themes as follows:

Category	Implicating documents
ACTS	<ul style="list-style-type: none"> Persons with Disability Act (Act 685), Sect 26 Street, Drainage and Building Act 1974. Uniform Building (Amendments) by-Laws (UBBL) 1991. By-law 34A
MALAYSIAN STANDARDS (MS)	<ul style="list-style-type: none"> MS 1184:2014 – Universal Design and Accessibility in the Built Environment – Code of Practice (Second revision) MS 2577:2014 – Architecture and Asset Management of Masjid – Code of Practice MS 2015-1:2017 – Public Toilets – Part 1: Design Criteria (First revision)
GUIDELINES	<ul style="list-style-type: none"> Garis Panduan Pemuliharaan Bangunan Warisan (2012) www.HistoricEngland.org.uk/advice/technical-advice/easy-access-to-historic-buildings-and-landscapes/



PROBLEM AND ISSUE

Making our heritage *masjid* accessible is an effort of its own as it will have modification and renovation barriers that contradict with the heritage building planning policies and requirements. The lack of access in heritage *masjid* is identified consequential of the design aspect of it that is usually with many steps and stairs, making it an obvious physical barrier for wheelchair users and difficult for temporary ambulant and the elderly. This inaccessibility will eventually discourage the PwDs to visit *masjid* for prayers and other activities at *masjid*.

AIM AND OBJECTIVES

The aim of this research is to: 1. identify and analyse the level of accessibility for PwDs and elderly in heritage *masjid*; and 2. to initiate design adaptation and innovation to upgrade the existing facilities to be Universally Designed for heritage *masjid* with compliance with MS1184:2014, MS2577:2014, MS2015:2017, UBBL, planning permissions and building regulations; and to create awareness for accessibility needs and requirement of PwDs and elderly for management staff of the Masjid and authority personnel.

RESEARCH METHODOLOGY

The research methodology approach is Qualitative Method that will be participatory and narrative design (Creswell, 2009). The qualitative research design selected is content analysis of regulatory documents relating to Accessibility and Heritage Buildings where the form of analysis consists of examining the live situation of obstructions on-site in comparison with the requirements of regulatory building (Walliman, 2011). The data collected from content analysis of related document reviews of Malaysian Acts, Design Guidelines in: Town and Country Planning Department; Department of Public Works; and Department of Islamic Development Malaysia, planning permissions, building regulations, and Malaysian Standards that has been gathered.

The data will be analyzed within the capacity of a case study or a “bounded system” of a specific case example as concluded by Merriam (2009) and the case study that has been selected is a notable enlisted national heritage *masjid* in Kuala Lumpur (Groat and Wang, 2002; Merriam, 2009).

In order to identify and analyze the level of accessibility for PwDs and elderly, an Access Audit Simulation Method was conducted at this



national heritage *masjid* that was selected as the case study. As coined by Holmes-Siedle (1996), this particular method of access auditing a building is to examine an existing building against predetermined criteria designed to measure the “usability” of the building to be “accessed” for disabled people. Usability ranges from getting in and around to exiting the building. Depending on the measurement criteria or checklists of facilities, the assessment examines the percentage of the facilities that can be used independently by disabled people.

The on-site simulation was conducted with Access Audit Team with expert Access Auditors and actual Persons with Disabilities (PwDs) of four identified disability category, namely; wheelchair users; physically challenged; blind and deaf; with interviews on aspect of access and barriers issues. The Access Audit was conducted in three stages:

1. **Pre Audit Preparation Stage** – using a checklist form extracted from MS1184, which is used during access audit simulation to conform the level of accessibility.
2. **Access Audit On-site Simulation** – conducted by a team of Access Auditor Experts and PwDs representatives using specific tools.
3. **Access Audit Report** – report generated in detail addressing existing facilities, issues and design solutions recommendations for further upgrading/renovation.

RESULTS AND FINDINGS

Access audit simulation conducted with an access audit team at the national heritage *masjid* in Kuala Lumpur.



FIGURE 1

Introductory and Access Audit briefing meeting with officer and care taker from the national heritage *masjid*.



FIGURE 2

Starting simulation at an available existing ramp to the *masjid* from the parking area.





FIGURE 3
Ablution area for wheelchair user before entering *masjid*.



FIGURE 4
Identifying all other main entrances are long flights of stairs.

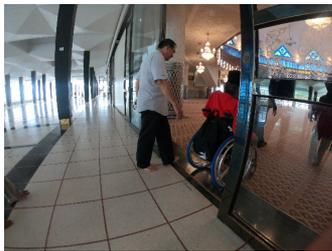


FIGURE 5
Entrance to the prayer hall from the corridor.



FIGURE 6
The prayer hall when not praying hours.



FIGURE 7
Identifying another entrance with stairs.



FIGURE 8
Available toilet at main floor level that is not accessible.



FIGURE 9
Seating or resting facilities that are well designed with the facade .

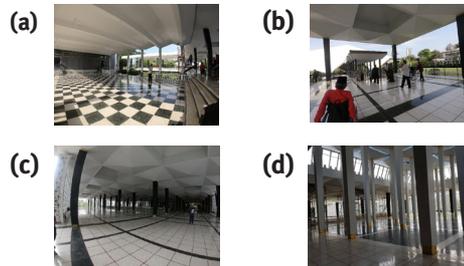


FIGURE 10(a)-(d)
Seamless corridor area for path of travel.

Identified Existing and Possible Accessible Route on Plan

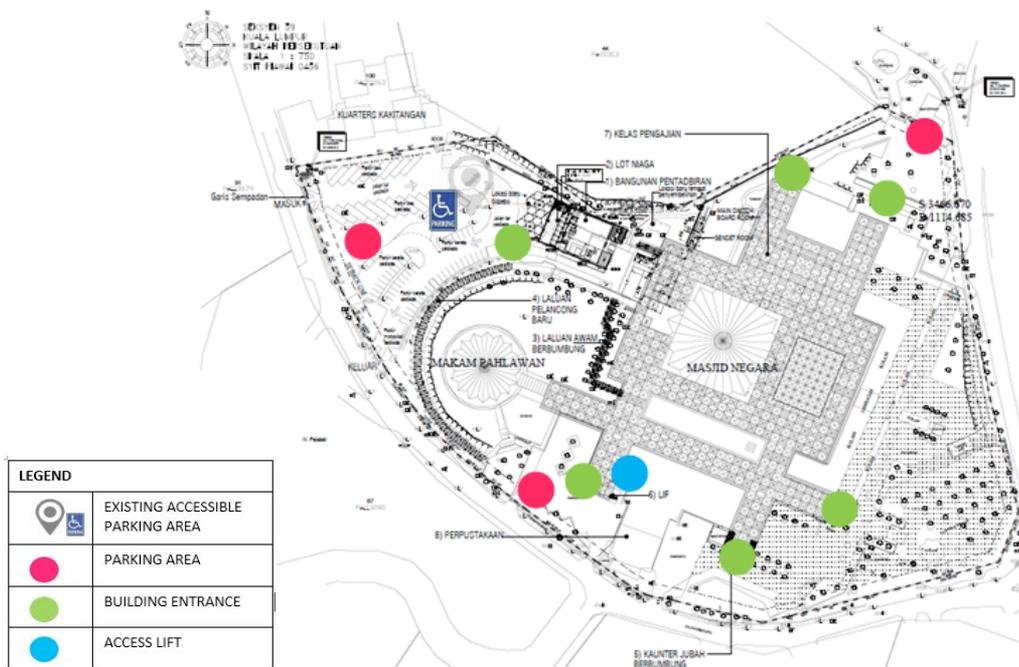


FIGURE 11

Plan location of existing accessible parking, public parking, entrance and access lift.

Access Audit Checklist and Access Audit Report

	1F. ENTRANCE RAMP	Yes	No	Remarks	Score (x)
(a)	Location of the ramp is clearly identify or located at main entrance • Is the ramp next steps or stairs?		✓	Entrances into the site. I propose two PWDs wheelchairs where we have lift the entrance 4? (Ramp poorly design with gradient 1:6 at dedicated OKU entrance. Propose to reconstruct new ramp 1:12). Encik Rahmat (WC user) says he is using the temporary ramp installed due to construction works as existing OKU parking is closed. To make good for existing OKU Parking pavement, outdoor ablution, ramp, and OKU toilet.	0

The ramp gradient is 1:12 or > 1:12					
	• Ramp at main entrance			Existing ramp with 1:6 gradient. Too steep, slippery and dangerous	0
	• Ramp at other locations	✓		To add Additional ramps required at level 1: • To Makam Pahlawan, by taking width 1.2m n gradient 1:12 and need to readjust the steel gate to the makam	0
	• Ablution area	✓		Only from OKU entrance has outddor ablution area	1
(b) Ablution area (within the Musolla/Prayer Room area)					
	• Limited space allocated		✓		0
	• Skid-resistant surface		✓		0
	• Bench at ablution pipe		✓		0
	1M. ABLUTION AREA (Not Attached/Stand Alone)	Yes	No	Remarks	Score (x)
	Ablution area			For ladies, toilet and ablution area are at underground level	
	• Limited space allocated		✓		0
	• Skid-resistant surface		✓		1
	• Bench at ablution pipe		✓		0
	1N. MEANS OF ESCAPE DURING EMERGENCY	Yes	No	Remarks	Score (x)
	Good lighting and legible signage clearly indicated		✓		0
(c)		Fair/ Basic Accessibility and Basic Compliance with MS1184:2014		21-40%	35-35%

FIGURE 12(a)-(c)
Part of the checklist of access items and score star rating for *masjid* typology in particular this case study of the national heritage *masjid*.

ANALYSIS AND DISCUSSION

TABLE 1
 Access audit analysis extracted from the access audit report
 conducted at the case study heritage *masjid*.

No	Items	Wheelchair User	Elderly/ Physically Challenged	Deaf	Blind	Remarks
1.	Approach to the building	X	✓	✓	✓	Current maintenance work
	Accessible parking	X	n/a	n/a	n/a	Only have one accessible parking and no standing signage
	Path of travel	X	✓	✓	X	Has step and stairs at entrances and no warning tactile
	Pedestrian crossing and zebra crossing	X	X	X	X	No zebra crossing from nearest KTM and public transport
	Kerb ramp	X	✓	✓	X	No kerb ramp with no warning tactile
	Entrance ramps	X	✓	✓	✓	One entrance only with poorly designed ramp, gradient 1:6
	Main entrance of the <i>masjid</i>	X	X	✓	✓	Five entrances with stair going up. Only one entrance with ramp (steep, 1:6)
	Horizontal circulation area and corridor	✓	X	✓	X	No warning tactile/ too spacious/ distance between the area too far
	Door	X	X	✓	✓	Heavy glass doors at all area
	Signages, symbol, and wayfinding	X	X	X	X	Poor wayfinding. No signages provided (due to heritage building restriction)
	Accessible toilets	X	X	n/a	n/a	No accessible toilet
	Prayer Hall	✓	✓	X	✓	Alternative solution for deaf people during <i>khutbah</i>
	Ablution area	X	X	✓	✓	Not accessible because underground
Means of escape during emergency	X	X	X	X	Evacuation only one access and no alarm and warning light	

2.	Steps/Stairs	X	X	✓	X	Difficult for wheelchair user to maneuver within the <i>masjid</i> areas. Width of stairs are very wide and convenient
	Lift	X	X	X	X	Under construction
	Mean of vertical escape during emergency	X	X	X	X	No access for vertical escape
3.	Handrails	✓	✓	✓	✓	Complement original building heritage design
	Resting facilities	✓	✓	✓	✓	Lack of seating for elderly
	Equipment, controls, and switches	✓	✓	✓	✓	—
	Information, technology, and communication	✓	✓	✓	✓	ICT facilities is not developed yet
	Finishes and fixtures	✓	X	✓	✓	No visual contrast
	Eating kiosk, food court, and restaurant	X	X	X	X	Eating kiosk located outside <i>masjid</i>
4.	Service personnel	X	X	X	X	Lack of awareness and communication skill for PwDs
	Facilities management and maintenance	X	X	X	X	Focus on preservation and conservation building in term of heritage building

As conclusion from data analysis, the accessibility for horizontal circulation in Masjid Negara is 19.37%, 10.86% for Vertical Circulation, 4.12% for Supporting Facilities and Amenities, and 1.0% for Additional Facilities and Amenities. Thus, the grand total score of accessibility in Masjid Negara is 35.5% with two stars. A further design solution and recommendation for access upgrades for heritage Masjid Negara are as follows.

1. Wayfinding and signages

- to propose five standing accessible maps of Masjid Negara at each entrance showing accessibility for PwDs with logos;
- to initiate wayfinding strategies using directional signages, pictogram outside and within Masjid Negara including corridors, prayer hall, toilets, lift; and



- application of interactive information panel to show the location and access of ablution, toilet, and prayer hall.
- 2. Ablution**
 - to propose portable ablution at least two units to be located at praying hall Level 1. The design similar to Masjid Tuanku Mizan, Putrajaya; and
 - to provide accessible ablution for VIP and can be used by PwDs using wheelchair.
 - 3. Accessible toilet**
 - propose accessible toilet for PwDs wheelchair users at staff toilet Level 1.
 - 4. Vertical circulation**
 - providing chairlift at all staircases to the Ground Level.
 - 5. Horizontal circulation**
 - to provide ramp 1.2m width 1:12 gradient to Makam Pahlawan; and
 - to provide ramp 1.2m width 1:12 gradient to Dewan Syarahan.
 - 6. Awareness**
 - train awareness program to all staff of Masjid Negara.
 - 7. Designated area**
 - to provide designated praying area Level 1 for wheelchair users. PwDs who are hearing impaired, to be located behind wheelchair users. Provide a chair for interpreter during *khutbah*.

CONCLUSION AND RECOMMENDATION

It can be concluded and recommended that the proposed improvements should initiate an Access Heritage Masjid Action Plan based on the Access Audit Report established as follows.

Short Term Plan (Immediate Action)

1. Proposed bilingual and pictogram signage designs and direction for effective “way finding”.
2. Periodic maintenance of pedestrian pathways completes with railing and identifying existing stairs and ramps that need to be added.



3. Ensure car parks areas safe for PwDs which provided with zebra crossing as well as improvement of signage and building layout information for them.
4. All staffs who engage at Front Desk should be trained specifically communication skill with PwDs.
5. Add benches around the masjid especially for senior citizens' purposes.
6. The speaker voice of public address system should be increased and cleared information specifically for the Disabled Visible person.
7. Bollard barriers on pedestrian pathways should be discarded due to block wheelchair access to the building.
8. Every disabled toilet should be provided emergency light and panic button specifically for Disabled Blind and Deaf person during emergency case.
9. Projector and monitor in front of the prayer hall should be provided for conveying information specifically to Disabled Deaf person.
10. More Unisex Ablution Area complete with "cubicle screen" or closed area for "privacy" at L1 level specifically for PwDs.
11. Seats should be provided at ablution area specifically for senior citizens.

Long Term Plan (Including with Operational Cost)

- 1 Focusing on and upgrading works specifically for ICT technology facilities.
2. Proposed innovation of the "Accessible Route" Map Design complete with 3D topography/building model that shows the access route and facilities provided in the building.

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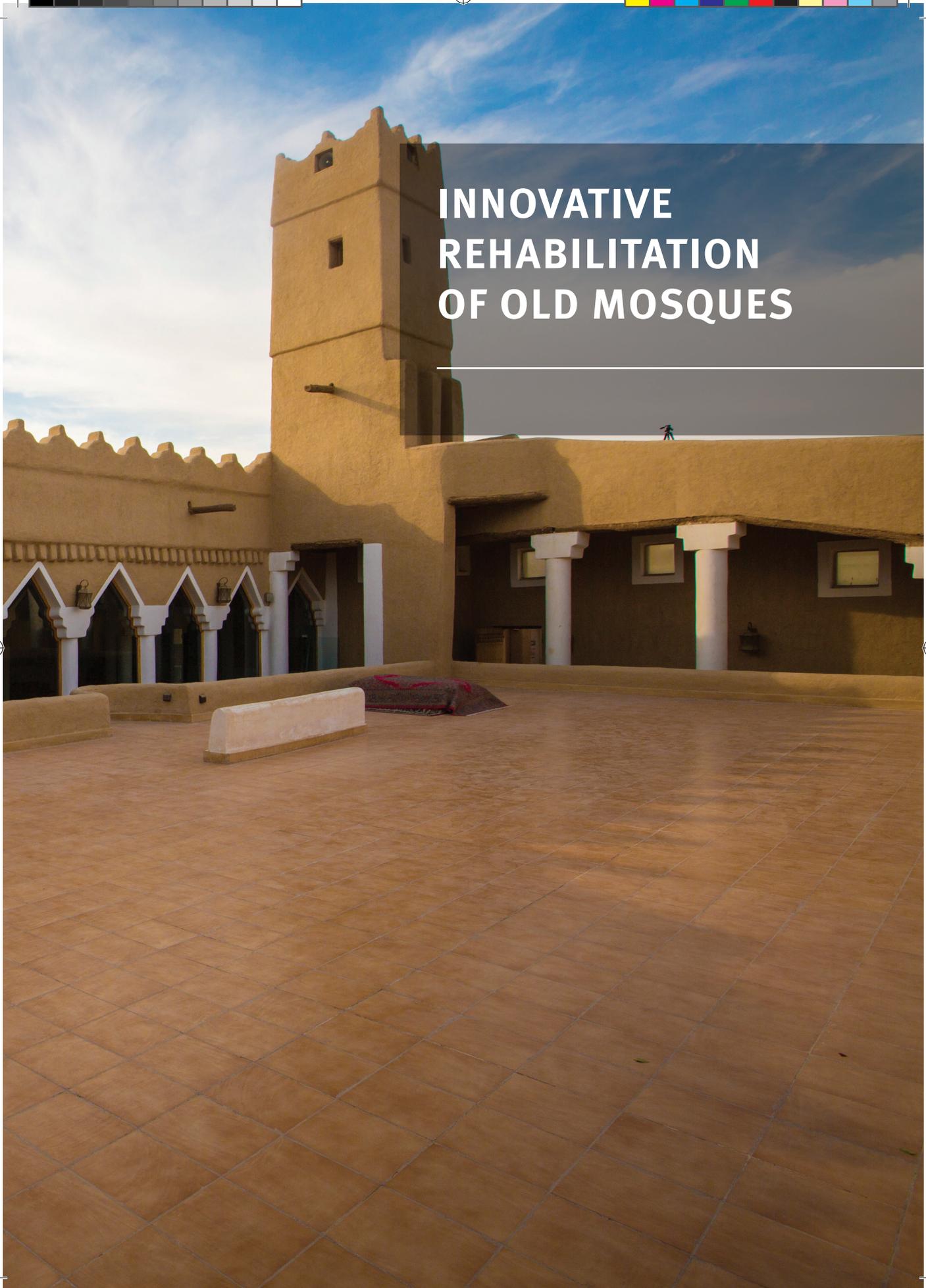
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INNOVATIVE REHABILITATION OF OLD MOSQUES

