

Principle of Privacy in Islamic Architectural Design Context: A Systematic Literature Review

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Abstract

Privacy has a significant role in formulating the elements of traditional Islamic architecture due to its critical importance in Islamic law. However, the birth of modern and contemporary architecture brought by modern trends and rapid urbanization created a diminishing sense of privacy and comfort to the building users. Besides, there is a lack of understanding and body of knowledge about privacy from an architectural perspective. Therefore, the present study aims to investigate the traditional design elements that promote privacy and provide a conceptual definition of privacy from an Islamic architectural perspective. The methodology used is a systematic literature review of English language literature published in two electronic databases (Scopus and ScienceDirect), using MeSH terms, keywords, and inclusion and exclusion criteria. The results of this study confirm that the principle of privacy plays a critical role in architectural design consideration, especially in residential areas. The conceptual definitions classify privacy as either a sociophysical aspect (physical, social, and psychological) or a sensory aspect (visual, acoustic and olfactory). Importantly, the key design elements for promoting privacy are the central courtyard, exterior facade, Mashrabiya, floor plans and spatial arrangement, subtle design approaches, transitional design elements, and neighbourhood urban configuration. The findings contribute to a guideline for urban planners and architects to understand better the privacy concept and its design elements to enhance the functional architecture in an Islamic context that respects the user's privacy and comfort. **Keywords:** Design Elements, Privacy, Prisma, Systematic Literature Review, Traditional Islamic Architecture.

Introduction

The concept of privacy is defined as filtered access to one's person or the person's chosen community as a means of control. It controls the ability of others to gain input from the

outside inside and vice versa. Privacy is one of the fundamental principles of Islam (Hayat, 2007); it is an essential and basic of all the fundamental rights and liberties. Privacy in Islam recognizes the right of every citizen of its state and that there should be no undue interference or encroachment on the privacy of his life. According to Aljawder and El-Wakeel (2022), the amount of privacy given in a specific context or situation is defined as the desired privacy. In contrast, the amount of privacy dictated in that particular context or condition is defined as the achieved privacy. It is only when the achieved privacy is at the same level as the desired privacy is when the users reach the optimum level of privacy. Similarly, Aljawder and El-Wakeel (2022) stated that privacy is a social construct that possesses the influence of culture, religion, and lifestyle variables. Al-Thahab et al (2014) suggested the definition of privacy as a mechanism to develop and maintain a shared relationship amongst individuals and within a community, small or large. Privacy is a series of choices that give an individual a sense of security (Al-Thahab et al., 2014; Aljawder and El-Wakeel, 2022).

Implementing privacy regulations can improve space planning and design to facilitate communal socialisation. In turn, this strengthens the function of space design in creating a safer residential environment. Like the traditional community, architecture and urban design elements are used to promote the privacy sense (Saleh, 1997). Besides the physical factors, sociocultural factors are among the most prominent forces that reshape housing development in the Middle East when considering its vernacular architectural history (Al-Mohannadi and Raffaello, 2021). Considering the sociocultural and physical pattern of privacy in the spatial form of Muslim homes, entrance doors, Iwan (Al-Thahab, 2019; Azizah and Putri, 2013), central courtyard (Yapicioglu and Cazacova, 2022), and windows played a critical role in formulating the privacy sense (Othman, 2015). The intermediate spaces of the iwans present a medium-connectivity pattern, which proves their functionality as mediating spaces that utilise the internal configuration of the house to support privacy (Othman, 2015). The Mashrabiya and individual meeting spaces as physical factors also contributed considerably to visual privacy and family privacy (Abu-Ghazze, 1997). However, the existing body of knowledge showed a disagreement about the key elements, physical or sociocultural, for privacy. Besides, there is a lack of understanding of the concept of privacy from an architectural perspective. There is also a lack of a comprehensive study that involves the overall architectural elements of privacy. Therefore, the present study aimed to investigate the wide range of traditional design elements that contribute to promoting privacy from an Islamic perspective and provide a conceptual definition for privacy in an Islamic architectural context.

Concept of Privacy in Islam

The principles of the Quran and Sunnah govern privacy within traditional Muslim communities. These principles provide individuals and their families a space to relax and respite from society's external pressures and expectations (Hayat, 2007). The concept of privacy within Islamic households may be understood through the framework of four aspects, including privacy pertaining to the separation between neighbouring dwellings, privacy concerning the segregation between males and females, privacy encompassing the boundaries within the family unit inside the home, and individual privacy (Mortada, 2011).

One of the critical aspects of privacy in Islam is gender privacy and providing a proper, safe and private place for different gender sanctuaries and personal and family sanctuaries (Othman et al., 2015). The female domain requires an elevated level of privacy and security from the public's attention (Al-Thahab et al., 2014; Othman et al., 2015). In Islam, the intimate

parts that must be covered by clothing or 'awrat' for men and women are pretty different with the 'awrat' of a man referring to the amount of the body from the navel to the knees and the 'awrat' of a woman being more extensive in different situations; with most Islamic school of thoughts agreeing that only the face and the hands of a woman should be exposed. However, these views do not speak for the entirety of Islam, especially considering other external factors such as climate, societal norms, and urbanization (Hayat, 2007; Al-Thahab et al., 2014). Therefore, the privacy concept in Islam takes different shapes from one community to another and from one time to another. Yet, it remains a critical principle affecting modern life's body, especially in Muslim communities.

The concept of privacy in the Muslim community means creating a balance between the privacy of the individual and the group, as privacy does not prevent social networking or mean total isolation and separation from society (Othman et al., 2014). Due to the gender separation in Islam, the privacy principle affects the built environment directly. Privacy is the main principle that shapes Muslim home and building design, including its plan, design, build, and use of spaces (Hayat, 2007). The privacy principle is critical in how cities are designed by providing a proper space for each gender. Yet, the Islamic community gives equal access to all. For example, in designing houses in Muslim communities, such as those in Jeddah, they design separated parlours and majlis for both males and females, showing equal importance to both genders. Al-Ban (2020) stated that in specific households, male parlours are smaller than females since they can commune in public areas with fewer restrictions than women. Privacy requirements are typically fulfilled by meticulous planning, which involves safeguarding the family's well-being and maintaining a clear distinction between private life and public affiliations (Memarian et al., 2011). Design issues encompass the management of visibility by visual or optical privacy, the mitigation of noise transmission via acoustic privacy and the regulation of odour diffusion through olfactory privacy.

The concept of privacy is upheld by the statement of Prophet Muhammad PBUH, which states that physical harm should not occur. As per Islamic teachings, damage can happen when others can participate, whether in observation or interference in the intimate happenings happening at someone's home. Islam carries the recognition that each person has the right to be free from any unwanted invasion, especially regarding personal privacy (Saleh, 1998). Saleh (1998) added that the combined theme founded on Islamic beliefs underlines a specific type of social interaction that honours confidentiality and the rights of spaces.

Privacy levels in Muslim residence design

Privacy in a Muslim dwelling is divided into three levels: (a) the general level of the city design, (b) the semi-general level of the residential neighborhood design, and (c) the personal level of the home spaces (Bokhari et al., 2020), See Table 1 below.

Table 1

Privacy Levels in residential design in Islamic community

Level	Generalisation	Communication
First level	General level – main roads, commercial areas, and open, green spaces	Sight and hearing
Second level	Semi-general level – residential neighbourhood	Speaking and looking
Third level	Personal level – home spaces	No observation from others

Source: Bokhari et al (2020)

Privacy principle affects the general concept of urban planning and design of Islamic cities from a broader perspective. The traditional Islamic cities appear in different patterns from the rest of the contemporary cities. For example, the mosque-centered model dominates most traditional Islamic cities (Othman et al., 2014). On the other hand, Saleh (1998) claimed that the residential neighbourhood of conventional Islamic cities consists of narrow and winding alleyways from the dominant roads. The unexpected turns and blind curves were given in these passageways, discouraging strangers and intruders.

Additionally, the built environment of Arriyadh divides the private residential neighbourhood from the city centre to provide maximum privacy for each house. Therefore, the houses are generally positioned away from the street and use the inner courtyards as their source of air and light. In the Islamic traditional city, it is also provided that each residential quarter is self-sufficient, fortified, and can give independence to its residents by having a mosque, local market, and public cemetery (Saleh, 2020; Othman et al., 2015; Hayat, 2007). Caesarina and Aina (2018) added that privacy also determines the building heights by ensuring no building shall be taller than the adjoining buildings. Any openings were also determined to ensure that the openings would not overlook a neighbour's house. However, when using the openings for light and ventilation, the openings shall be placed high in the wall. In addition, it should be noted that the architectural design of conventional Muslim residences is influenced by principles drawn from Islamic Sharia Law, which is based on the teachings of the Quran and Sunnah. Scholars have identified three primary concepts arising from these rules: privacy, modesty, and hospitality (Othman et al., 2014).

Types of Privacy in Muslim cities

Privacy in Islamic cities also can take two different types; Razali and Talib (2013a) mentioned two critical types of privacy, including visual or optical and auditory, while Othman et al (2015) added a third type, olfactory privacy. Optical privacy revolves around the site location and layout plan in which the entrance door, windows, openings, and screen heights are designed systematically to hinder unwanted gazes from outsiders. Optical privacy shields the female occupants from non-mahram eyes (Razali and Talib, 2013a). This privacy can be attained through many external design interventions, including the positioning and structure of entrance doors, the arrangement and dimensions of windows and openings, the regulation of building heights and balconies, and the integration of internal courtyards and gender-specific areas. The primary separation between the public and private domains is commonly observed at the front entrance door. In traditional Muslim households, the entrance doors are often situated far from the main street and are deliberately positioned so as not to face neighboring residences immediately (Othman et al., 2015).

On the other hand, auditory (or acoustic) privacy revolves around the control of sound transmission from the home to outside and this places emphasis on the quality and material of the walls, floors, and roofs to prevent the voices of female occupants, especially from being heard outside (Razali and Talib, 2013a). The desired degree of this privacy is attained through sturdy walls, which serve the dual purpose of ensuring acoustical or auditory privacy and meeting the necessary privacy standards. According to Mortada (2011), it is a standard practice in the Middle East to construct traditional dwellings with thick walls composed of mud bricks, stones, and boulders to provide sound insulation effectively. The application of this design intervention extends to both floors and rooftops, with the primary objective of maintaining a constant level of control over the transmission of sound in both horizontal and vertical directions (Mortada, 2011).

The concept of privacy inside Muslim households extends beyond just visual and auditory boundaries. According to Othman et al (2015), olfactory privacy is significant in disseminating kitchen odours to areas where visitors are being hosted. In the Middle East, it is a typical practice among traditional Muslim homeowners to utilize various forms of incense to disinfect their households and manage the odours emanating from cooking areas (Sobh et al., 2013). Removing footwear before entering a host's residence is a customary gesture by guests aimed at reducing potential contamination and preserving a friendly olfactory environment within the household (Sobh and Belk, 2013). Othman et al (2015) also highlighted that the layers of privacy consisted of four components: privacy between the neighbourhood, privacy between the men and women, privacy between the family members within the house, and individual privacy.

Privacy between modern architecture and traditional Islamic architecture

According to Alitajer and Nojoumi (2016), a limited hierarchy of access to spaces diminishes the sense of privacy in modern houses. The entrance of modern homes possesses little privacy as it carries the same value as typical corridors. Modern dwellings have remarkably decreased depths compared to traditional Muslim places with high depths (Alitajer and Nojoumi, 2016). The current private spaces are typically only protected by a door and reveal the entirety of what is inside the area once opened. However, in the traditional house, which applies Islamic architecture, the spatial configuration is given so that easily accessible rooms are avoided, and this can be seen through its kitchen, where the kitchen of a traditional home is usually a closed private space (Aljawder and El-Wakeel, 2022; Salih and Ismail, 2018, 2017).

Based on Abu-Ghazze (1997), in the 90s in Saudi Arabia, the residences were built using modern plans constructed as free-standing villas to symbolize social prowess, substituting the traditional attached dwellings. This causes a loss of cultural heritage and the care for privacy and family life. This confirms that modern architects tend to neglect the significance of privacy in the housing design process as some consider it limiting their freedom of design (Aljawder and El-Wakeel, 2022; Saleh, 1997). Additionally, Al-Thahab et al. (2014) find that formal aesthetics, economic factors and new technological methods are much more critical in their design process than inherited social and cultural values, which they consider an anathema of modern architecture (Saleh, 2002). Gerrard (1993) added that the historical significance is blatantly disregarded in contemporary residential architecture and is replaced by Western design concepts, which switch the traditional form-language of open spaces configured by Islamic religious traditions to be rendered out for more superficial reasonings in architectural thinking. Similarly, Salih et al (2020) confirmed that the urban public spaces of historical Islamic cities have been neglected due to rapid urban changes leading to the decline of the

cultural identity of Islamic architecture. Besides, modern trends in housing design led to a reduction in the social space of traditional houses, which led to a limited hierarchy of access to areas, diminishing the sense of privacy in modern homes (Aljawder and El-Wakeel, 2022; Alitajer and Nojoumi, 2016).

Method

The present study applies a systematic literature review (SLR) using the PRISMA approach for Moher et al (2009) and the thematic and content analysis of Mayring (2014). The SLR is an ideal research method for the comprehensive investigation of evidence that provides comprehensive coverage of existing literature (Moher et al., 2009). Besides, Mendeley and ATLAS.ti 9 were used to analyse the collected data. The present SLR aimed to answer the following questions: 1) What is the conceptual definition of privacy in an architectural Islamic context? 2) What are the transitional design elements for enhancing the privacy principle from an Islamic perspective?

Search strategy

The electronic systematic search was applied in August 2022 and updated in April 2023. Two reviewers independently searched two databases, including Scopus and ScienceDirect. A manual search was applied for the references of the final included articles using Google Scholar. Four main variables using Medical Subject Headings (MeSH) and keywords involved in the SLR were Privacy AND "Architecture" OR Planning OR Urban OR Building OR Home OR House OR "Urban planning" AND Islam OR Muslim OR Islamic. MeSH terms, quotation marks and parenthesis were used for advanced searching as needed. The search string is applied only to the title, abstract, and keywords in the mentioned databases. The PRISMA flow diagram for the different phases of the SLR is shown in Figure 1.

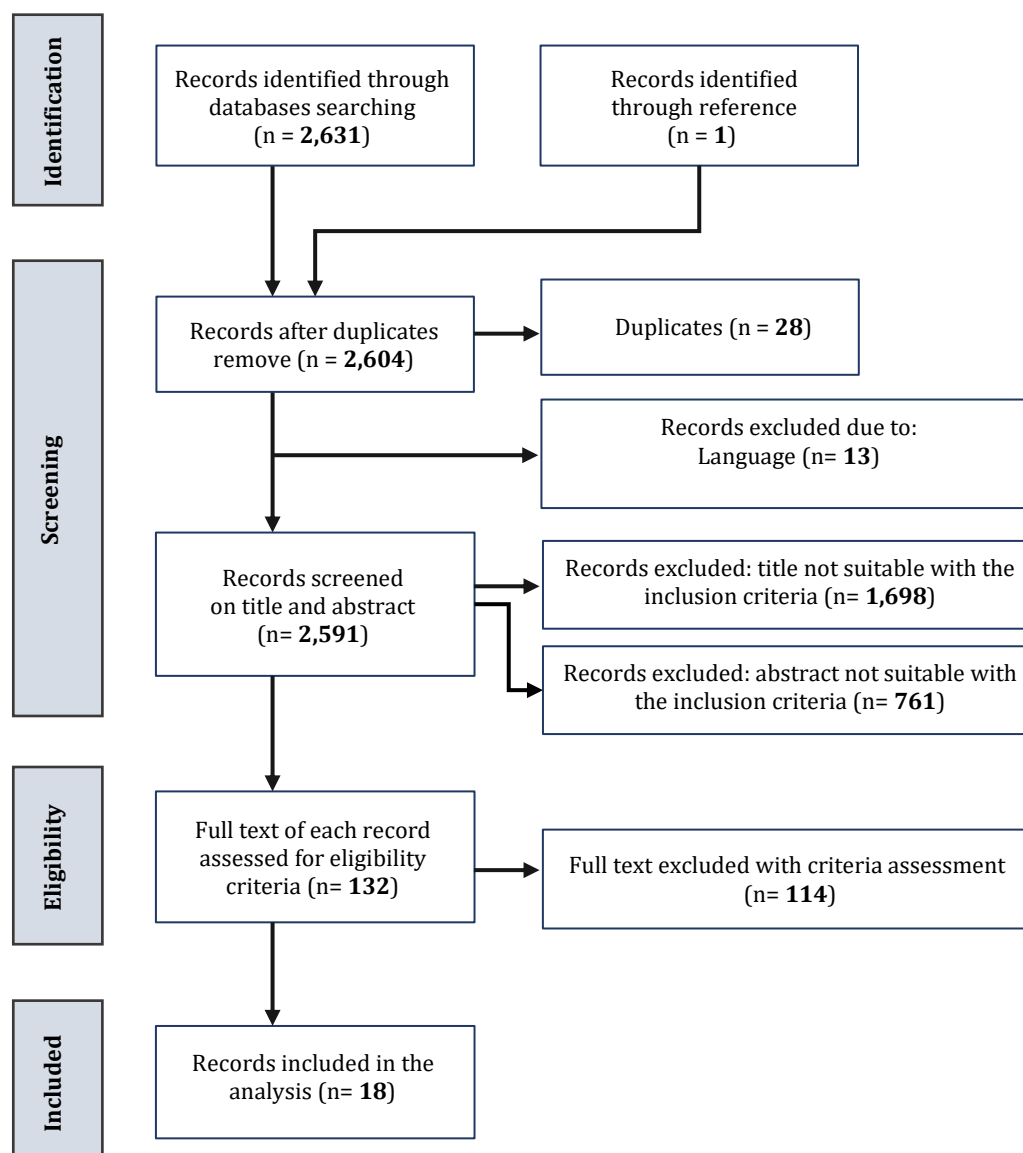


Figure 1 PRISMA flowchart for studies selection process

Source: Authors drawing (2023)

Inclusion and exclusion criteria

The inclusion and exclusion criteria of the present SLR were: (1) language of the studies: studies published in English are only included. Studies published in a language other than English are excluded. (2) Type of the studies: Original research, case studies, and systematic review articles published in h-indexed journal articles were only included to ensure the quality of the studies in the present SLR (Moher et al., 2009). Systematic and theory reviews were included to understand the conceptual framework of privacy better. (3) The focus of the studies: Based on the objective of this study, the included articles must focus on the privacy elements in architecture in an Islamic context. Studies focusing on privacy and not indicating architecture variables (at least partially) were excluded. (4) Type of study community: The included articles should focus on Muslim communities, Muslim houses, Muslim families, or Muslim countries. (5) Type of the article: The selected articles should be open-access with full text.

Study Selection

In PRISMA's identification and screening phases, two investigators independently evaluated the titles and abstracts of relevant articles. Articles were included if they discussed the concept of privacy from an Islamic viewpoint, privacy architectural principles in Islam, or a combination of these variables. All articles selected by one or both investigators were included in the subsequent step. In the PRISMA eligibility step, the same independent investigators examined the full texts of the included articles using the eligibility criteria. On the selected articles' citations, a manual search was conducted on the reference of the final papers. The research team and the two researchers then discussed the documents and reached a consensus regarding their inclusion. As shown in Table 1, a summary table was constructed to display the data from the selected studies. The authors then analysed and synthesised the included studies using Atlas.ti.9. All five authors had approved the search protocol steps. The collected data synthesised one main theme (Islamic privacy in architecture) that included two categories: (a) concept of privacy principle and architectural design and (b) elements of privacy principle in architectural design.

Search Outcome

The present SLR yielded 2,631 documents published between 1983 and 2022 from the two electronic databases, see Figure 2. Additional record (n= 1) was included from the manual search of the reference list of the selected studies using Google Scholar. After extracting duplicated studies and including studies published in English, 2,591 studies remained, of which 1,698 were excluded based on the title screening and 761 were excluded based on abstract screening. A full text of 132 articles was screened, from which 114 studies were excluded as they included no relevant data (n= 89), did not focus on the Islamic context (n= 12), and did not open access for full text (n= 13), see Table 2 and Figure 1.

Table 2

Summary of the selected study

<i>Source</i>	<i>Theme</i>	<i>Category</i>	<i>Study objective</i>	<i>Study design</i>	<i>Main findings</i>
Aljawder and El-Wakeel (2022)	Privacy in Architecture (100%)	1. Concept of privacy principle and architectural design 2. Elements of privacy principle in architectural design	It was intended to discuss various conceptions and interpretations of privacy, with an emphasis on privacy in architecture.	Method: Qualitative: Analytical review Setting: Islamic communities Sample: 40 study	It emphasised the significance of visual seclusion for home occupants and addressed a religious dimension that must be considered, resulting in the appearance of the home facade (Mashrabiya) in traditional Islamic architecture. Mashrabiya was a facade treatment used in traditional Islamic architecture to obtain visual privacy and natural light.
Yapicioglu and Cazacova (2022)	Privacy in Architecture (100%)	Elements of privacy principle in architectural design	To identify the importance of housing privacy to residential satisfaction in private Muslim cultures and suggest the need for privacy is unmet in modern residences.	Method: Qualitative: Case study Setting: Dhofar, Sultanate of Oman Year: 2022	It proposed a new approach to housing design to accommodate the privacy required in private cultures by employing traditional housing protective architectural features in a modern setting. It also offered a residential layout model that considers inhabitants' social background, traditions and lifestyle that could serve desired privacy.
Al-Mohannadi and Furlan (2021)	Privacy in Architecture (50%); Hospitality in Architecture (50%)	1. Concept of privacy principle and architectural design 2. Elements of privacy principle in architectural design	It employed space syntax analysis and other simulation and visualisation techniques to investigate the influence of socio-cultural patterns on the spatial form of traditional Qatari houses.	Method: Quantitative: Space syntax and simulation Setting: Qatar Year: 2018-2021	Privacy is among the most influential factors in determining the interior layout of dwellings. The housing unit's privacy must be maintained through architectural interventions designed using careful data collection and precedent analysis, avoiding reactive solutions that result in formative difficulties and inharmonious built form, and avoiding the loss of architectural solidity and simplicity established by traditional housing models in Qatar.

Al-Ban (2020)	Privacy in Architecture (50%)	Elements of privacy in architectural design	It sheds light on how the spatial organisation of the traditional Hijazi residence serves the needs, comfort, and seclusion of women and how it evolved in the 19 th century to maintain cultural relations.	Method: Qualitative: Case study Setting: Hijaz in western Saudi Arabia Year: 2015-2020	Privacy plays a critical role in shaping the culture of the cities in Hijaz. It demonstrated the power of social values in the architecture of the Hijazi housing design. The privacy principle significantly affects the house design in the location, exterior facade, location of entrances, floor plans and elevations, and vertical elevation and terrace position.
Al-Thahab (2019)	Privacy in Architecture (40%); Social Cohesion (30%); Sociospatial Organization (30%)	Elements of privacy in architectural design	It sought to examine the theoretical foundations of social cohesion and solidarity in the everyday life of the Mahalla in light of its Islamic heritage.	Method: Qualitative: Case study & interview Setting: Iraq Sample: 2 case study and 30 participant Year: 2013-2016	It demonstrated that social-cultural factors, such as privacy, play a crucial role in the architecture of buildings and the spatial organisation of Mahalla's (neighbourhood) social activities by highlighting the effect of previous factors on creating a responsive environment that maintained its operational mechanism and fluidity over centuries.
Manaf et al. (2019)	Privacy in Architecture (100%)	Concept of privacy and architectural design	To examine the definition of visual privacy from an Islamic perspective, or Muslim visual privacy, and to identify the factors that influence its perception among Malay Muslim communities residing in terrace housing developments in the Klang Valley.	Method: Mixed methods: survey and interview Setting: Malaysia Sample: 441 respondent; 10 interviewee Year: 2017-2018	Adapting to the contemporary urban environment of today's terraced housing, Malay Muslim families are moving away from the traditional Malay and previous Islamic concepts of visual seclusion. Malay Muslim households must balance visual exposure and visual access to achieve optimal visual privacy to enhance daily comforts while remaining informed by Malay culture and Islam.

Ismail et al. (2017)	Privacy in Architecture (30%)	1. Concept of privacy principle and architectural design 2. Elements of privacy principle in architectural design	The purpose of this paper is to review the theory and philosophy of residence principles and to present the foundational principles for devising housing criteria based on Islamic teachings.	Method: Qualitative: Systematic review Setting: Islamic communities Sample: 15 theory Year: 2000-2015	It confirmed that, despite significant differences between traditional and contemporary domicile design and settings, most of its occupants place a high value on visual privacy at home. To increase the level of privacy and other factors, occupants of contemporary neighbourhoods frequently modify the original layout of their residences.
Samsudin and Abidin Idid (2016)	Privacy in Architecture (100%)	Concept of privacy principle and architectural design	This paper aimed to examine the need for a more comprehensive study on the extent of detailed house and environment design that can encourage the Malay community to conform to Islamic values.	Method: Qualitative: Systematic theory review Setting: Islamic communities Year: 2000-2015	They mentioned that to meet the needs of Malay residents, specific physical design characteristics from kampongs should be incorporated into the modern housing environment at two distinct levels: the micro (house unit) and macro (settlement or neighbourhood) levels. The Muslim-Malay resident social cultures, such as privacy factors, are the foundation of the Malay way of life and should be considered when designing a settlement's total living environment.

(Othman et al., 2015)	Privacy in Architecture (100%)	1. Concept of privacy principle and architectural design 2. Elements of privacy principle in architectural design	It examined theories and literature pertaining to the seclusion, modesty, and hospitality of Muslim households.	Method: Qualitative: Systematic theory review Setting: Islamic communities Sample: 19 reviews Year: 1986-2013	Contributed to developing the concept of seclusion and identified three essential privacy forms: visual, acoustic, and olfactory. Confirmed that the architectural styles and materials used to construct residences in the Middle East differ significantly from those in other predominantly Muslim nations due to climatic conditions. Middle Eastern countries emphasise privacy by segregating male and female spaces, influencing the home layout and design, whereas, in Southeast Asia, home residents observe privacy through subtle design approaches.
Rahim (2015)	Privacy in Architecture (100%)	Elements of privacy principle in architectural design	It investigated the impact of culture and religion on the conception of visual privacy and the housing design characteristics that affect visual privacy for Malay Muslims residing in terrace housing.	Method: Quantitative: Survey Setting: Malaysia Sample: 381 respondent Year: 2014	Both Malay and Islamic cultures influence the concept of visual privacy. Behavioural norms and physical mechanisms are important visual privacy regulation mechanisms among Malay Muslim families. Norms of behaviour are consistent with traditional Malay culture and Islam. Physical elements such as internal and external walls, partitions, curtains, and blinds are essential for providing families with visual privacy—however, the new paradigm in cultural housing disregards visual privacy in terrace house design.

Othman et al. (2014)	Privacy in Architecture (40%); Modesty (30%); Hospitality (30%)	1. Concept of privacy principle and architectural design 2. Elements of privacy principle in architectural design	This paper examined Muslims' perceptions of privacy, modesty, and hospitality in their residences based on their actual experiences.	Method: Qualitative: Case study and interview Setting: Muslims in Australia Sample: three families Year: 2014	The study explored the significance of modesty in the design of Muslim homes as a means for family members to achieve maximum privacy while extending hospitality to visitors inside and outside their homes. It also suggested avenues for expanding research into culturally adaptable housing systems to satisfy the changing needs of Australia's multicultural society.
Azizah and Putri (2013)	Privacy in Architecture (100%)	1. Concept of privacy principle and architectural design 2. Elements of privacy principle in architectural design	To determine the extent of hijab concept implementation in Arab households in Pasar Kliwon, Surabaya.	Method: Qualitative: Case study Setting: Pasar Kliwon, Indonesia Sample: 5 houses Year: 2014	It contributed to the concept of privacy and divided it into two types: (1) physical privacy is permanent physical elements (walls, doors, windows, and Mashrabbiya) and non-permanent physical elements (furniture and plants). (2) Nonphysical privacy is nonphysical elements (behavioural or user activity).
Razali and Talib (2013a)	Privacy in Architecture (100%)	Elements of privacy principle in architectural design	It examined the concept of privacy from Islamic and Western viewpoints to measure female privacy in Malay Traditional Dwellings and Low-Cost Flat Dwellings via space planning.	Method: Qualitative: Interviews Setting: Malacca, Malaysia Sample: 2 interviewee	Privacy value in spatial organisation, floor plan design, and wall opening is a prime determinant in Malay Traditional and Low-Cost Flat Dwellings. It also revealed that understanding privacy values and needs will influence the interior space planning of Malays living in urban Low-Cost Flat Dwellings.

Razali and Talib (2013b)	Privacy in Architecture (100%)	Elements of privacy principle in architectural design	To examine and establish the Islamic principle of privacy in the Muslim Malay traditional dwelling spatial organisation. To study the application of Islamic privacy in the interior architectural elements in Muslim Malay traditional dwelling.	Method: Qualitative: Case study and interview Setting: Kampung Morten, Malaysia Sample: 2 types of dwellings; 2 interviewee	It revealed that the Malays' religious beliefs, cultural norms, and daily activities significantly regulate family privacy. Religious beliefs would improve the quality of life in space planning, privacy value, educating residents, and preventing unethical behaviour. The seclusion practises and requirements of adult women, family members, individuals, closest relatives, and non-mahram visitors. The level of privacy in a Muslim family is reflected in the interior space design about privacy provisions, religious beliefs, daily activities, and Malay culture.
Belk (2011)	Privacy in Architecture (100%)	1. Concept of privacy principle and architectural design 2. Elements of privacy principle in architectural design	To comprehend and resolve the conflict between privacy and hospitality in Qatari households within the context of identity threats posed by the influx of Western modernity and its implications for marketers.	Method: Qualitative observation and in-depth interview Setting: Doha, Qataris Sample: 24 middle-class male and female Year: 2010	"Privacy is part of the home and personal space conceptual framework." It was discovered that privacy and hospitality are prominently valued in Qatari households. Doha's architecture, design, and preferred residence styles reflect this desire for privacy. High boundary walls, window screens, and inward-facing courtyards visually demarcate a clear distinction between public and private space between the interior private sphere of the home, which the inhabitants and their guests use, and the public sphere.

Hayat (2007)	Privacy in general context (100%)	Concept of privacy principle and architectural design	It attempted to determine the extent to which Islam reveres the right to privacy and the types of privacy it recognises.	Method: Qualitative: Case study Setting: Pakistan Sample: random documents	It contributed significantly to the general definition of privacy in an Islamic context. Privacy is a human right representing the sanctity of protecting one's and his rights. Privacy must be achieved through social privacy (within personal and family) and physical privacy (home, neighbourhood, street, and city design).
Hashim et al. (2006)	Privacy in Architecture (100%)	1. Concept of privacy principle and architectural design 2. Elements of privacy principle in architectural design	To comprehend the privacy requirements, regulatory mechanisms, and design effects of two-story, low-cost terrace houses in Selangor.	Method: Qualitative: Case study Setting: Malaysia Sample: 6 houses Year: 2003	The findings supported the premise that cultural values influence housing and that religious understanding affects the mechanisms used to regulate visual privacy and intimacy. They highlighted that design factors of subtle design approach, such as cultural elements and social culture, are significant for privacy.
Saleh (1997)	Privacy in Architecture (100%)	Elements of privacy principle in architectural design	It examined two distinct traditional settlements in Saudi Arabia and discussed efforts to incorporate their architectural elements into future communities.	Method: Quantitative: Observation Setting: Saudi Arabia Year: 1990-1995	It illustrated how implementing privacy regulations can improve space planning and design to facilitate communal socialisation. In turn, this strengthens the function of space design in creating a safer residential environment. Like the traditional community, routes of movement and the location of public structures and spaces separate strangers from residents.

Result and Discussion

Characteristics of the selected articles

The present SLR investigated 2,632 possible documents published between 1983 and 2022, and only 18 journal articles were selected in the review. Of these articles, (n= 5) were from Malaysia, (n= 4) from mixed Muslim communities, (n= 2) each from Saudi Arabia and Qatar, and (n= 1) each from Oman, Iraq, Pakistan, Indonesia, and Australia (Muslim families). Most of the articles (n= 8) were qualitative case studies, four (n= 4) were systematic reviews, four (n= 4) were qualitative approaches (survey and observation), one article was mixed methods,

and one article was a qualitative observation, see Table 2. The majority of the studies (n= 12; 66.66%) fully represented the theme of Islamic privacy in architecture, and around 27.77% (n=5 articles) partially (30% to 50%) represented the mentioned theme. However, only one study described the concept of Islamic privacy in general (including the architecture). It was included in the present review to enhance the understanding of the conceptual definition of privacy in Islaam from multiple perspectives. Besides, the majority of the papers (n= 14; 77.77%) focused on privacy in house architectural design, four articles (n= 3; 16.66%) focused on privacy in a neighbourhood context; meanwhile, only one study (n= 1; 05.55%) focused on privacy in a general context.

Privacy and architecture in Islamic context

This section describes and discusses the results regarding the first category (concept of privacy principle and architectural design) and aims to answer the first question of the present SLR. Eleven of the selected articles (n= 11; 61.11%) highlighted the concept of the privacy principle and its role in architectural design (Aljawder and El-Wakeel, 2022; Al-Mohannadi and Furlan, 2021; Manaf et al., 2019; Ismail et al., 2017; Samsudin and Abidin Idid, 2016; Othman et al., 2015, 2014; Azizah and Putri, 2013; Belk, 2011; Hayat, 2007; Hashim et al., 2006).

Privacy refers to the right of one to physical personal isolation or personal data isolation and thereby express himself selectively. It is generally a human right that represents the sanctity of protecting one and his rights (Hayat, 2007). Privacy is a key principle of the Islamic faith, which significantly emphasises the inherent human entitlement to privacy. The Islamic Shariah recognises and upholds the importance of respecting the privacy of an individual's home and personal life. It emphasises the prohibition of intruding into the business of others (Belk, 2011; Hayat, 2007). The Islamic faith in protecting human privacy is represented in architectural design in Muslim communities by implementing several aspects of architectural elements to promote the principle of privacy (Al-Mohannadi and Furlan, 2021; Azizah and Putri, 2013; Hashim et al., 2006). Other aspects of architectural design, such as modesty and hospitality in architectural design, were used to promote the concept of privacy in architectural design and urban planning of Islamic cities, especially the traditional ones (Othman et al., 2015, 2014). The significance of modesty in the design of Muslim homes was used as a means for family members to achieve maximum privacy while extending hospitality to visitors inside and outside their homes (Othman et al., 2014).

Many of these studies (n= 5 articles; 29.41%) discussed three types of privacy: (a) social privacy (nonphysical), which refers to personal and family privacy in a social and behavioural context, such as information privacy and social behaviours. (b) Physical privacy refers to the privacy of one in a physical environment, such as a home, neighbourhood, street, or city design (Azizah and Putri, 2013; Ismail et al., 2017; Hayat, 2007). (c) Psychological privacy refers to people's feelings of security and isolation, and it can be promoted by enhancing social and physical privacy. Physically, privacy is essential, providing security to humans (Azizah and Putri, 2013). For example, in analysing the dwelling context that utilises large panels of glass that provide ample transparency to the occupants' movements, privacy can be diminished; this creates opportunities for unseemly characters to lurk and take advantage of that weakness. The occupants of that dwelling do not possess optimal security even in their own homes (Othman et al., 2014; Azizah and Putri, 2013; Belk, 2011).

Psychologically, privacy plays a vital role in creating barriers with other people according to one's satisfaction. Thus, the designed spaces meant to protect its occupants behave as a

shield for them to barter the amount of information they would like to provide to their surroundings. If the specific spaces are not per the occupants' requirements, this will create stress and arguments. Physical and social privacy provided a feeling of power and authority over their environment within the social context (Ismail et al., 2017; Samsudin and Abidin Iddid, 2016; Belk, 2011).

Four studies (n= 4; 23.53%) also highlighted three types of privacy, including (a) visual privacy (Manaf et al., 2019; Ismail et al., 2017; Othman et al., 2015, 2014). (b) Acoustic privacy (Othman et al., 2015, 2014). (c) Olfactory privacy (Othman et al., 2015, 2014). Overall, a well-designed built environment can achieve different types of privacy and contribute to Islamic privacy. Similarly, Aljawder and El-Wakeel (2022) discussed that the concept of privacy in architecture as a set of guidelines provides the design inspirations for Muslim dwellings that refer to interior courtyards and bent entrances.

Architectural design elements influencing privacy

This section discusses the second category (elements of privacy principle in architectural design) suggested in this SLR. Most selected articles (n=15 articles; 83.33%) discussed this category (Aljawder and El-Wakeel, 2022; Yapicioglu and Cazacova, 2022; Al-Mohannadi and Furlan, 2021; Al-Ban, 2020; Al-Thahab, 2019; Ismail et al., 2017; Rahim, 2015; Othman et al., 2015, 2014; Azizah and Putri, 2013; Razali and Talib, 2013a, 2013b; Belk, 2011; Hashim et al., 2006; Saleh, 1997). Two principal codes appeared in this analysis: "house and building design elements" and "neighborhood design", see Table 3. At different levels, the required design elements can include:

House and building design elements:

(a) The central courtyard is critical in enhancing the privacy factor in the house and building design. This factor was mentioned in four articles (n= 6; 33.33%) (Aljawder and El-Wakeel, 2022; Yapicioglu and Cazacova, 2022; Al-Mohannadi and Furlan, 2021; Othman et al., 2015; Rahim, 2015; Belk, 2011).

(b) The exterior facade: (1) high boundary walls; (2) the main opening (entrance or Iwan) should be small and not face the neighbour doors; (3) limited open windows that face the main street and are located on the upper level. This factor was mentioned in six studies (n= 7; 38.88%) (Yapicioglu and Cazacova, 2022; Al-Mohannadi and Furlan, 2021; Al-Ban, 2020; Al-Thahab, 2019; Othman et al., 2015; Rahim, 2015; Azizah and Putri, 2013).

(c) Mashrabiya (terrace or window wooden screen) was also mentioned as a facade treatment used in traditional Islamic architecture to obtain visual privacy and natural light. It was mentioned in four studies (n= 5; 27.77%) (Aljawder and El-Wakeel, 2022; Al-Ban, 2020; Azizah and Putri, 2013; Othman et al., 2015; Belk, 2011).

(d) Floor plans, room design, and spatial arrangement: The spatial arrangement of the house enhances the concept of providing a private zone (bedrooms), a semi-private zone (living area), and a semi-public area (courtyard). Certain percentages of the floor plans are occupied by women exclusively. Two studies mentioned it (n= 3; 16.66%) (Aljawder and El-Wakeel, 2022; Al-Mohannadi and Furlan, 2021; Othman et al., 2014).

(e) Subtle design approaches: The design approach and design elements were based on esthetic, spiritual, and ethical values (Rahim, 2015; Razali and Talib, 2013a, 2013b). Social and cultural factors were found to be a prime determinant of privacy in Malay traditional houses. These factors were mentioned in four studies (n= 4; 22.22%) (Rahim, 2015; Razali and Talib, 2013a, 2013b; Hashim et al., 2006).

(f) Transitional elements: such as corridor and foyer, it is a distribution zone to allow specific users to enter each house room separately and enhance privacy. This factor was highlighted in two studies (n= 2; 11.11%) (Aljawder and El-Wakeel, 2022; Al-Ban, 2020).

Neighbourhood urban planning and design

(g) Urban configuration: routes of movement and the location of public structures designed to enhance the concept of privacy, such as zigzag or organic narrow pathways. This factor was mentioned in three of the selected articles (n= 3; 16.66%). Al-Thahab, 2019; Ismail et al., 2017; Saleh, 1997).

Table 3

Elements of the built environment influencing privacy

Category	Code: Element	Explanation	Study N (%)	Source
House and building design elements	Central courtyard	Social gathering space	6 (33.33%)	Aljawder and El-Wakeel, 2022; Yapicioglu and Cazacova, 2022; Al-Mohannadi and Furlan, 2021; Othman et al., 2015; Rahim, 2015; Belk, 2011
	Exterior facade	1. High boundary walls 2. Main opening and lwan 3. Small high windows	7 (38.88%)	Yapicioglu and Cazacova, 2022; Al-Mohannadi and Furlan, 2021; Al-Ban, 2020; Al-Thahab, 2019; Othman et al., 2015; Rahim, 2015; Azizah and Putri, 2013
	Mashrabiya	Terrace or window wooden screen	5 (27.77%)	Aljawder and El-Wakeel, 2022; Al-Ban, 2020; Othman et al., 2015; Azizah and Putri, 2013; Belk, 2011
	Floor plans and spatial arrangement	Divide the spaces to: 1. Private 2. Semi-private 3. Semi-public/public	3 (16.66%)	Aljawder and El-Wakeel, 2022; Al-Mohannadi and Furlan, 2021; Othman et al., 2014
	Subtle design approaches	Following the social cultural aspect	4 (22.22%)	Rahim, 2015; Razali and Talib, 2013a, 2013b; Hashim et al., 2006
	Transitional design elements	Corridor and foyer, to allow specific users to enter each zone separately	2 (11.11%)	Aljawder and El-Wakeel, 2022; Al-Ban, 2020

Neighbourhood Urban routes of 3 (16.66%) Al-Thahab, 2019; Ismail et al., 2017; Saleh, 1997
 urban planning configuration movement and the location of
 and design the location of public structures

Most of the previous studies focused on privacy in residential housing design, and regardless of the time period, the vast majority of residential house occupants give a high value to visual privacy at home (Othman et al., 2015). Privacy also plays a crucial role in the architecture of general buildings and the spatial organization and urban configuration of neighbourhoods by implementing the privacy elements (discussed above) in the creation of a responsive environment that maintained its operational mechanism and fluidity over centuries (Al-Thahab, 2019; Samsudin and Idid, 2016). Similarly, Obeidat et al (2022) confirmed the critical role of privacy as a motivational domain for spatial layout transformation. On the other hand, architectural design elements also play a critical role in promoting or prohibiting privacy (Aljawder and El-Wakeel, 2022).

Regarding residential housing, several factors and elements were critical in formulating different levels of privacy, such as physical and social privacy or visual, acoustic, and olfactory privacy (Othman et al., 2015, 2014). Most of these design elements appeared in the traditional courtyard houses, see Figure 2. In these houses, Islamic architecture provided secondary transitional design elements called a foyer attached to the door rather than having an entrance that connects directly to the home's main spaces. This creates a unique design element using a transitional space acting as a distribution zone to allow specific visitors to enter each room separately (El-Wakeel, 2022; Al-Thahab et al., 2014; Belk, 2011). Typically, the centre of the house contains an open space (central courtyard) for socialising. Besides, male and female social areas were detached with the provision of separate entrance doors to prevent male guests from seeing the house's occupants in their resting condition, thus allowing the occupants to be comfortable in their own homes (El-Wakeel, 2022; Yapicioglu and Cazacova, 2022). This is similar to the architectural practice in Malay dwellings in which the layout plan and the house design follow the Islamic principles of visual and audio privacy to prevent unethical behaviour (Razali and Talib, 2013a).

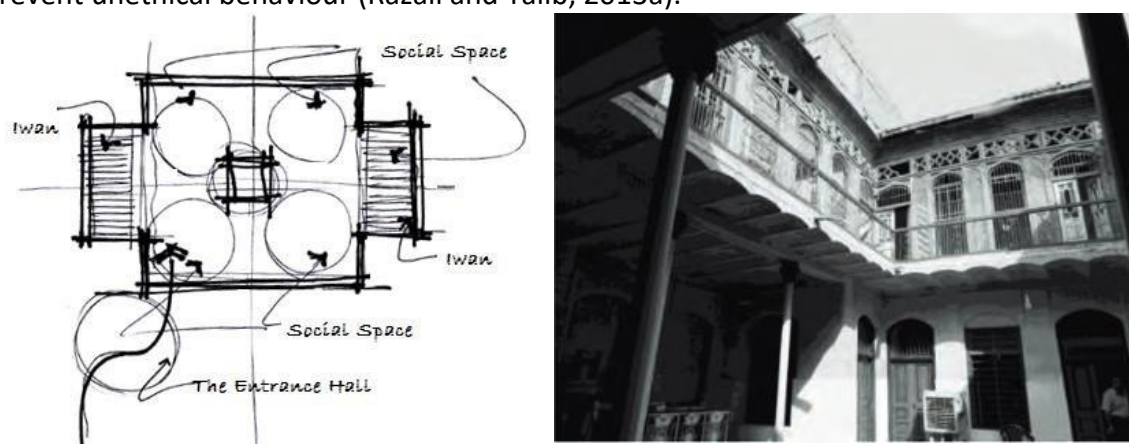


Figure 2 Social space (courtyard) in the traditional Iraqi house

Source: Al-Thahab et al (2014)

In Iraq, these can be seen in the physical, spatial, and functional properties of the Islamic entrance 'Iwan', the garden that divides a courtyard spatially, and the variation in the levels

of the spaces (Al-Thahab et al., 2014). Similarly, Al-Mohannadi et al (2022) stated that for houses in Iraq, the main entrance was designed to deter straightforward visual contact from outside the house into the homes, especially ones providing views of the occupants. Comparably, in Africa, the residential compounds have a strict separation for women with separated, walled areas for the head of the household, visitors, and female inhabitants (Costa, 1989). Another study from Saudi Arabia by Alnaim et al (2022) elaborated that in Islam, a 'no harm' principle is set in place for the urban fabric, allowing inhabitants to avoid invasions of privacy. The doors in traditional Saudi residences are set back from one another to ensure that any social interaction happening at doorways will not infringe on the inhabitants' privacy. This, in turn, creates the generation of cul-de-sacs, which propagates the control of visibility from the street. According to Al-Ban (2020), Mashrabiya provides ventilation to the Hijazi traditional houses by extruding from the façade of the typical house elevation with a specific dimension of 1.2-1.4m width and 2.4-2.7m height. Mashrabiya, in its traditional sense, is composed of sheesh, which are wooden lattice slats to deter any visual intrusions from the outdoors but still provide the users, especially the women, visual access to the outside world. Correspondingly, due to the requirement for privacy, it was necessary to board up balconies, close off windows and provide enclosed roof terraces that affect the spatial design of Muslim buildings (Abdullah and Saleh, 1998).

Most importantly, build environment factors, such as high boundary walls, window screens, and courtyards, visually demarcate a clear distinction between public and private space between the interior private sphere of the home, which the inhabitants and their guests use, and the public sphere (Hughes, 2012; Belk, 2011). However, these physical privacy elements could vary based on the period, social culture, region, or climate. Othman et al (2015) confirmed that the architectural styles and materials used to construct residences in the Middle East differ significantly from those in other predominantly Muslim nations, such as Malaysia, due to climatic conditions and the availability of local materials. For example, Middle Eastern countries implemented privacy by segregating male and female spaces; this requirement influences the layout and design of their homes, whereas in Southeast Asia, such as Malaysia, home residents observed privacy through subtle design approaches (Rahim, 2015). Besides, the social-cultural aspect of Malay is a crucial factor affecting privacy formulation in Malaysian architecture and way of life (Samsudin and Abidin Idd, 2016).

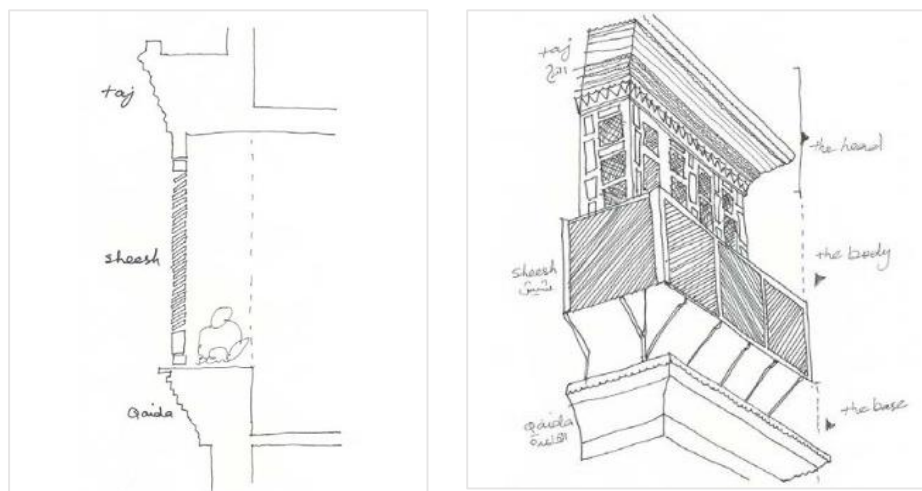


Figure 3 Mashrabiya (terrace or window wooden screen) at elevation

Source: Al-Ban. (2020)

In summary, traditional Islamic cities built environments were influenced by Islamic Sharia Law's ideology, derived from the words of the Quran and Sunnah (Othman et al., 2015). Therefore, following the Islamic guidelines, the concept of privacy is provided in the context of a sanctuary for oneself and one's family. Privacy is the axis that shapes Islamic-based residential architecture with the planning, building, perception, and use of interior spaces (Othman et al., 2015; Hayat, 2007). Yapicioglu and Cazacova (2022) also claimed that Islamic architecture assigned selected cultural normalcies as Islam highly values familial privacy. The present study revealed two types of conceptual definitions for privacy that classify privacy based on sociophysical aspects, including physical, social, and psychological privacies or sensory characteristics: visual, acoustic and olfactory privacies. The present SLR also determined seven elements of the Islamic built environment for enhancing privacy, including the central courtyard, exterior facade, Mashrabiya, floor plans and spatial arrangement, subtle design approaches, transitional design elements, neighbourhood movement routes and urban configuration. Therefore, this SLR contributes to the enhancement of the conceptual framework of privacy in architecture by providing a clear definition of privacy in the Islamic built environment and identifying its elements. The findings of this study showed that privacy is a dominant factor that can provide a higher level of comfort for built environment users. Therefore, the study provides clear insights regarding why privacy is significant within residences and built environments. It gives a guideline to the urban planners and architects to understand better the design elements to enhance the functional built environment in an Islamic context that respects the user's privacy and comfort.

Conclusion

In short, the current systematic literature review revealed that privacy has been a critical principle in architectural design throughout the ages; it plays a crucial role in the formation of different design tools and elements. Two types of conceptual definitions for privacy have appeared in the present review that classify privacy based on (a) sociophysical aspects (physical, social, and psychological privacies) or (b) sensory aspects (visual, acoustic and olfactory privacies). The essential elements of the design of Islamic architecture that contribute to promoting privacy factor are the central courtyard (social area), exterior facade (Iwan, high wall, and small high window), Mashrabiya (wooden screen), floor plans and spatial arrangement, subtle design approaches, transitional design elements (corridor and foyer), neighbourhood urban configuration (movement routes and location of public structures). Overall, the relation of religious background is a crucial figure in dwelling design. Therefore, it can be said that the concept of privacy has been incorporated into Islam to the extent that Muslims are responsible for building houses that protect individualistic privacy. It must also be comprehended that privacy has grounds against physical and visual invasion and religious and cultural consequences. There is difficulty in fully achieving an architectural design that fulfils the need for privacy; however, it will comprehensively strengthen the space's ability to be more sustainable and secure.

These findings provide theoretical approaches for developing a responsive built environment that enhances privacy and comfort for building users. The study findings are significant for urban planners and architects. The present systematic literature review exhibits a few limitations: First, most of the included studies focused on a dwelling architectural design; thus, it is imperative to approach the findings cautiously. Second, the study's findings developed from a systematic review investigation of journal articles published in Scopus and ScienceDirect that focus on privacy in an architectural context. In future studies, an empirical

investigation is required to test the suggested conceptual framework of privacy in architecture to develop a new comprehensive understanding. Third, all the studies reviewed were written in English; authors excluded the investigations written in other languages. This systematic review contributes to the interpretation and convergence of the concept of privacy in built environments in an Islamic context. It is one of the early systematic literature reviews investigating the concept of privacy and architecture within Islamic communities.

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