



PLANNING MALAYSIA:

Journal of the Malaysian Institute of Planners

VOLUME 23 ISSUE 5 (2025), Page 527 – 540

SELECTION CRITERIA WHICH INFLUENCE RESIDENTS' PREFERENCES FOR HYGIENIC INTERIOR FLOOR FINISHES

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Abstract

This study investigates how Malaysian residents select hygienic interior floor finishes to support sustainable living environments. Recognizing flooring's impact on health, comfort, and safety particularly in tropical climates prone to moisture and allergens. This research addresses a critical gap in existing literature by examining hygienic material selection in Malaysian residential interiors. Using a Kruskal–Wallis test on data from 314 respondents across 11 residential areas in the Kinta District, the study reveals that residents prioritize durability, ease of maintenance, and hygiene. Materials such as tiles, timber, marble, carpet, mosaic, and vinyl are selected based on performance in specific spaces. Bacteria-resistant marble and dust-free timber are preferred in living areas, while fire-resistant mosaic and vinyl enhance safety. The findings highlight the influence of emotional and functional factors on flooring preferences. This research contributes to sustainable design practices, aligning with Malaysia's GBI and QLASSIC systems, and adds insights to post-pandemic health-oriented material selection in tropical environments.

Keywords: Selection Criteria, Preferences, Interior Floor Finishes

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INTRODUCTION

A sustainable living environment enhances well-being by promoting comfort, safety, and a connection to nature while ensuring long-term usability (Abu Bakar et al., 2017). The researcher also stated that interior spaces play a key role in achieving this through effective spatial layouts, functional design, and appropriate material selections. Among these, flooring is particularly significant due to its direct and constant contact with users, demanding properties such as durability, comfort, and hygiene (Ching et al., 2005).

In Malaysian residential interiors, the most commonly used floor finishes are tiles, timber, marble, carpet, mosaic, and vinyl (Blakey & Rohde, 2002; Harris & Fitzgerald, 2015; Ulrich et al., 2008; Tuladhar et al., 2015). These materials fall into three categories which are hard, resilient, and soft flooring which each suited for specific spatial and functional needs (Bower, 2006; Moussatche & Languell, 2001;). Selection is typically based on four key criteria: beauty, hygiene, durability, and comfort (Callery, 2007; Binggeli, 2014; Brownell, 2008; Chavhan et al., 2014). Despite this, residents often lack clear guidelines and rely on professionals like interior designers or suppliers to make informed choices. Preferences, as defined by Coolen and Hoekstra (2001) and Mahmud Jusan (2010), are dynamic and emotionally driven, influenced by daily interaction with the built environment (Zinas, 2013).

Understanding these preferences allows construction professionals to offer tailored design solutions, reducing renovation frequency and resource wastage. This research provides guidance to both practitioners and government agencies, as well as enhancing sustainable rating systems such as GBI and QLASSIC (Lent et al., 2010; CIDB Malaysia), thus supporting a healthier, more efficient residential environment.

RESEARCH BACKGROUND

In Malaysia, although various studies have investigated pro-environmental behaviours, limited attention has been given to the relationship between individuals and their immediate interior environments, particularly how interior finishes and ambience influence sustainable practices and health perceptions (Abu Bakar et al., 2017; Ibrahim et al., 2024). One critical yet underexplored component within this context is interior floor finishes, which significantly influence hygiene, indoor air quality, and overall well-being in residential spaces.

Hygiene is a cornerstone of public health, particularly in humid tropical climates where flooring is often exposed to moisture, dust, and mould. Inappropriate floor finish selections may lead to the accumulation of allergens, emission of volatile organic compounds (VOCs), and microbial proliferation, which are linked to respiratory disorders, asthma, and skin-related illnesses (Azizul Azli, 2015; Bluysen, 2013). This risk is exacerbated in tropical

residential settings, where high humidity and fluctuating temperatures further compromise material hygiene and durability. A healthy interior environment must not only be devoid of harmful substances but also support psychological well-being, social interactions, and physical safety (Halliday, 2008; Ibrahim et al., 2024). While Halliday's framework remains influential, current challenges such as environmental toxins and heightened hygiene awareness in post-pandemic life necessitate updated interpretations. Previous models by Heerwagen and Zagreus (2005) and Hassanain and Mudhei (2006) have drawn links between building design and occupant health, but these are seldom adapted to flooring-specific concerns within tropical, domestic settings.

In healthcare design, hygienic flooring has long been acknowledged for its role in infection prevention, yet comparable attention in residential design, especially in Malaysia, remains insufficient. Therefore, this study aims to fill this gap by exploring the selection criteria influencing residents' preferences for hygienic interior floor finishes focusing on balancing functional performance with health-conscious design in the Malaysian home context.

RESEARCH METHODOLOGY

This research employed a comprehensive methodology beginning with an in-depth literature review, drawing on reputable sources such as academic journals, scholarly books, design periodicals, and other relevant publications. Data analysis was conducted using Microsoft Excel and the Statistical Package for the Social Sciences (SPSS) Version 24. The Kruskal-Wallis test was selected as the primary statistical tool after a careful evaluation of available analytical methods. This nonparametric test was deemed most suitable due to the study's relatively small sample size, high variability among groups, and non-normal data distribution.

Nonparametric methods were preferred because they are more flexible and do not rely on strict assumptions about population parameters. Specifically, the Kruskal-Wallis test is useful for detecting statistically significant differences in a variable across multiple independent groups. Unlike parametric tests, it does not assume normality or homogeneity of variance, making it appropriate for real-world, human-related research contexts. In order to obtain a compliance statement which is administered in accordance with the ethical research practices, hence the researcher has claimed all the information obtained shall be used solely for the purpose of this research only and the confidentiality of the response is assured. It is stated on the front page of the questionnaire's surveys.

The next procedure is that the closed-ended questionnaires have been distributed to 314 respondents. This number of respondents is calculated carefully by using the stratified random sampling technique by using the formula and significance level which is prescribed in the social sciences field to determine the number of respondents. These respondents resided in these 11 housing areas in

Kinta District in Ipoh, Perak. All of these residential areas have then been divided into four geographical divisions, namely north, south, east, and west, by using the sample size calculation formula. The total number of respondents represents all of these housing areas to avoid bias.

Reliability Statistics

Based on Table 1, it presents the results of internal consistency reliability assessed using Cronbach's Alpha, a standard method for evaluating how well items within a scale measure a single construct (Peter & Paul, 1979; Siti Norlizaiha 2005; N.R. Muhamad Ariff, 2009). A Cronbach's Alpha value nearing 1.0 indicates a high level of internal consistency, while values below 0.6 are generally considered poor. According to Uma Sekaran (2000), a value of 0.7 or above is typically regarded as acceptable, and the alpha value of 0.9 obtained in this study confirms the reliability and consistency of the research instrument used.

Table 1: Reliability Statistics

Reliability Statistics		
Cronbach's Alpha Size 10pt	Cronbach's Alpha Based on Standardized Items	N of Items
.900	.932	31

Source: Abdul Halim, N., et al., (2021)

Analysis Findings

The Kruskal-Wallis nonparametric test was selected after the researcher conducted several preliminary statistical analyses. This decision was influenced by the characteristics of the dataset, which included small sample sizes, high within-group variance, and normal distributions. Nonparametric tests, such as the Kruskal-Wallis test, are particularly suited for such data conditions due to their simplicity and flexibility. Most importantly, this test is effective for determining whether the values of a particular variable differ significantly across two or more independent groups (Laerd Statistics, 2015). Nonparametric methods are termed "nonparametric" because they do not rely on assumptions about population parameters such as the mean or variance, nor do they require the data to follow a specific distribution (Siegel & Castellan, 1988). The Analysis of Interior Floor Finishes with the Interior Spaces by Selection Criteria of Hygiene is as follows:

Tiles

The Kruskal-Wallis test results (please refer to Table 2) indicate that in living areas, dust-free tiles received the highest mean rank (75.72, $N = 29$), followed by moisture resistance, slip resistance, and other protective attributes. These findings suggest that flooring in living spaces is prioritized for its ease of cleaning and ability to support frequent maintenance activities, which is essential for ensuring

indoor hygiene in high-traffic, multifunctional environments (Hassanain, 2008; Zhang et al., 2021).

The living room, being a central area used for various activities. The surface finishes should be quickly cleaned using basic tools such as a broom or damp cloth. In dining areas, moisture-resistant tiles were ranked highest (25.88, N = 8), which highlighted the need to address frequent food and liquid spills.

Therefore, dense, hard, and non-porous tiles are preferred in this zone. It is owing to the reasons to minimize water retention and facilitate cleanliness (Aman et al., 2019; Barbosa et al., 2020).

Table 2: The Correlation between Interior Floor Finishes (Tiles) with Interior Spaces Used and Selection Criteria of Hygienic

Interior Floor Finishes : Selection Criteria :	Tiles							Selected Criteria	Average
	Hygiene								
	Stain Resistant	Slip Resistant	Moisture Resistant	Dust-Free	Bacteria Resistant	Fire-Resistant	Gas Chemical		
Interior Spaces	Mean Rank								
Living Area	72.07	73.29	74.69	75.72	72.76	72.76	73.03	Dust-Free	73.47
Dining Area	22.88	22.75	25.88	23.00	21.63	18.50	19.94	Moisture Resistant	22.08
Kitchen Area	27.78	30.76	29.14	30.44	32.02	28.5	32.08	Gas Chemical	30.10
Bedroom	15.25	9.50	9.50	8.25	16.25	8.00	9.50	Bacteria Resistant	10.89
Restroom	9.00	8.19	6.13	8.25	9.50	11.63	12.75	Gas Chemical	9.35

Source: Abdul Halim, N., et al., (2021)

Timber Floorboard

The Kruskal-Wallis test in Table 3 indicates that dust-free timber floorboards were most preferred in living areas due to their ease of maintenance (mean rank = 90.52, N = 45). Living rooms, being multifunctional and high-traffic, benefit from hygienic and easy-to-clean surfaces.

In dining areas, slip-resistant timber ranked highest (22.00, N = 8), likely because of its dense, non-porous nature that prevents spills from causing slips (Aman et al., 2019; Barbosa et al., 2020). For kitchens and bedrooms, bacteria resistance (48.50, N = 1) and moisture resistance (21.63, N = 8) were

prioritized, respectively, highlighting timber's health and comfort benefits. It was posited by Zhang et al., (2021) and Matan & Matan, (2007). However, concerns remain about timber's performance in wet environments like restrooms, where it is prone to warping and splitting due to humidity and heat (Ching et al., 2005; Brownell, 2008).

In Malaysian kitchens, the use of oil and water also shortens timber's lifespan, making it an unsuitable flooring choice. Though easy to clean, timber requires consistent maintenance to avoid damage from dust, sand, or spills. Surfaces need to be polished every few years and cleaned immediately after contact with liquids as posited by Lim et al., (2020). The installation of timber floors requires professional skills, and untreated timber is vulnerable to termite attacks (Matan & Matan, 2007). Additionally, timber can be slippery when wet, posing safety hazards especially for children and the elderly (Zhang et al., 2021).

Table 3: The Correlation between Interior Floor Finishes (Timber Floor Board) with Interior Spaces Used and Selection Criteria of Hygienic

INTERIOR FLOOR FINISHES:	TIMBER FLOOR BOARD							SELECTED CRITERIA	AVERAGE
SELECTION CRITERIA:	HYGIENE								
INTERIOR SPACES	STAIN RESISTANT	SLIP RESISTANT	MOISTURE RESISTANT	DUST-FREE	BACTERIA RESISTANT	FIRE-RESISTANT	GAS CHEMICAL		
	MEAN RANK								
LIVING AREA	83.89	80.48	85.89	90.52	83.13	77.84	78.77	DUST-FREE	82.93
DINING AREA	21.19	22.00	19.00	14.44	20.31	18.50	21.00	SLIP RESISTANT	19.49
KITCHEN AREA	42.50	24.50	47.00	47.00	48.50	46.00	46.00	BACTERIA RESISTANT	43.07
BEDROOM	13.19	18.38	21.63	20.25	20.50	17.75	17.75	MOISTURE RESISTANT	18.49
RESTROOM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NIL	0.00

Source: Abdul Halim, N., et al., (2021)

Carpet

By referring to Table 4, it shows that fire-resistant carpets ranked highest in living areas (85.44, N = 18). It is due to their heat resistance and durability, especially when made from polyamide fibres (Kang & Lee, 2013). In dining areas, gas and chemical resistance were prioritized (40.50, N = 2), as carpets can absorb volatile organic compounds (VOCs). It is due to some users to select natural, low-emission alternatives like jute or sea grass to reduce indoor air pollutants (Salthammer et al., 2010). For bedrooms, stain resistance was the top criterion (17.60, N = 10). The wool carpets were preferred for their dense fibre structure, durability, and hypoallergenic properties (Chen et al., 2012). However,

respondents generally avoid using carpets in kitchens and restrooms due to the high moisture exposure in these spaces. It promotes microbial growth and material deterioration (Nicolai et al., 2006).

In colder climates, such as in western countries, carpets are widely used because of their slip resistance and thermal insulation. It is also preferred for the reasons of sound absorption, providing comfort and warmth underfoot, especially in barefoot households (Fujita & Kimura, 2012). To reduce the risk of slipping caused by water, rubber padding is sometimes installed beneath carpets to improve grip and positional stability (Klenz Larsen et al., 2010). Despite these benefits, carpets are often perceived as unhygienic due to their tendency to trap dust, bacteria, and allergens. These that can lead to respiratory issues as posited by Mendell et al., (2005). Moisture retention and food spills can also lead to foul odours, especially when they are not promptly cleaned. Thus, contributing to discomfort in enclosed spaces (Levin & Hodgson, 2002).

These hygiene concerns explain why carpets are rarely chosen for wet zones, despite their comfort and aesthetic value in dry indoor environments. Overall, material selection reflects a balance between comfort, indoor air quality, and maintenance effort depending on the function of each interior space.

Table 4: The Correlation between Interior Floor Finishes (Carpet) with Interior Spaces Used and Selection Criteria of Hygienic

INTERIOR FLOOR FINISHES:	CARPET							SELECTED CRITERIA	AVERAGE
	HYGIENE								
SELECTION CRITERIA:									
INTERIOR SPACES	STAIN RESISTANT	SLIP RESISTANT	MOISTURE RESISTANT	DUST-FREE	BACTERIA RESISTANT	FIRE-RESISTANT	GAS CHEMICAL		
	MEAN RANK								
LIVING AREA	69.94	69.36	64.53	60.58	62.00	85.44	80.50	FIRE-RESISTANT	70.34
DINING AREA	24.25	19.00	16.50	16.50	26.25	29.00	40.50	GAS CHEMICAL	24.57
KITCHEN AREA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NIL	0.00
BEDROOM	17.60	12.85	8.95	12.65	10.45	15.15	13.60	STAIN RESISTANT	13.04
RESTROOM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NIL	0.00

Source: Abdul Halim, N., et al., (2021)

Mosaic

The Kruskal-Wallis test (Table 4) shows that mosaic flooring is highly preferred in living areas, with fire resistance ranking highest (73.25, N = 8). It is for the reason of its ability to act as passive fire protection in central communal spaces (Aman et al., 2019). In kitchens and dining areas, fire resistance (28.80, N = 15)

and slip resistance (31.00, N = 4) are prioritized. It is as a result of the small tile format and grout lines help reduce slipperiness, especially in spill-prone environments (Ghazali et al., 2015).

For bedrooms and restrooms, moisture resistance is the leading criterion (23.90, N = 5; 11.29, N = 7). It is for the reasons of reflecting mosaic's effectiveness in controlling humidity and preventing mould and mildew growth (Zhang et al., 2021). The non-porous and water-resistant surface of ceramic or porcelain mosaic tiles inhibits fungal development. It happens owing to limiting moisture penetration which the primary trigger for microbial growth (Mendell et al., 2005). When grout lines are properly sealed, tile flooring becomes easier to clean and maintain. They reduce the presence of damp microenvironments that can affect indoor air quality (Salthammer et al., 2010).

The use of mosaic tiles in restrooms is also functional, as grout channels assist in directing water efficiently toward drains. Subsequently, enhancing safety and hygiene (Barbosa et al., 2020). Moreover, mosaic tiles contribute to environmental sustainability and do not encourage mould formation when properly maintained (Lim et al., 2020). Cleaning is straightforward, requiring only a soft towel and mild detergent to remove stains or grease from the surface. However, the smooth surface of the tiles can become slippery when wet, increasing the risk of home injuries. This issue can be mitigated by applying a non-slip sealer. It can improve traction without compromising the aesthetic quality of the tile (Klenz Larsen et al., 2010).

Table 5: The Correlation between Interior Floor Finishes (Mosaic) with Interior Spaces Used and Selection Criteria of Hygienic

INTERIOR FLOOR FINISHES:	MOSAIC							SELECTED CRITERIA	AVERAGE
SELECTION CRITERIA:	HYGIENE								
INTERIOR SPACES	STAIN RESISTANT	SLIP RESISTANT	MOISTURE RESISTANT	DUST-FREE	BACTERIA RESISTANT	FIRE-RESISTANT	GAS CHEMICAL		
	MEAN RANK								
LIVING AREA	45.13	55.50	70.25	49.94	56.94	73.25	69.88	FIRE-RESISTANT	60.13
DINING AREA	18.13	31.00	18.38	22.13	14.50	19.50	25.00	SLIP RESISTANT	21.23
KITCHEN AREA	22.27	24.50	19.10	19.13	22.17	28.80	20.57	FIRE-RESISTANT	22.36
BEDROOM	13.60	18.70	23.90	18.80	19.20	19.10	17.40	MOISTURE RESISTANT	18.67
RESTROOM	8.71	9.43	11.29	8.86	7.43	6.86	5.14	MOISTURE RESISTANT	8.25

Source: Abdul Halim, N., et al., (2021)

Marble

The Kruskal-Wallis test (Table 6) shows that in living areas, bacteria-resistant marble was most preferred (mean rank = 88.44, N = 52). It is by reason of its smooth, glossy surface that it supports hygiene and ease of disinfection (Zhang, Ma, & Ji, 2021). In dining and kitchen spaces, users favoured dust-free (30.19, N = 27) and moisture-resistant (36.94, N = 16) finishes. It is due to their surfaces prone to effect by spills. Therefore, textured marble helps to prevent slips (Aman, Ahmad, & Ariffin, 2019).

The residents preferred marble flooring for their bedrooms and restrooms, which has stain resistance (22.14, N = 7) and moisture resistance (12.50, N = 2) as top priorities. It is attributable to the reasons of marble's surface inhibits bacterial and fungal growth (Mendell et al., 2005). Its glossy finish also enhances aesthetics by creating the illusion of a consistently clean space (Ching, Jarzombek, & Prakash, 2005).

Marble requires minimal cleaning tools, making it a hygienic choice for regular upkeep (Brownell, 2008). However, marble's high porosity makes it prone to staining from coloured liquids, and it cannot withstand acidic cleaners without surface damage (Plunkett, 2010). The installation is complex and demands skilled workmanship to prevent cracks or uneven finishes (Ching et al., 2005). A major drawback is its slipperiness when wet or greasy, increasing the risk of accidents in wet areas (Barbosa, Pinheiro, & Noriega, 2020). This safety issue can be mitigated by opting for textured marble, which provides better grip while preserving its elegant look (Aman et al., 2019). Overall, marble is valued for its hygiene and visual appeal, but practical limitations must be managed for safe and lasting use in interior spaces.

Table 6: The Correlation between Interior Floor Finishes (Marble) with Interior Spaces Used and Selection Criteria of Hygienic

INTERIOR FLOOR FINISHES:	MARBLE							SELECTED CRITERIA	AVERAGE
SELECTION CRITERIA:	HYGIENE								
INTERIOR SPACES	STAIN RESISTANT	SLIP RESISTANT	MOISTURE RESISTANT	DUST-FREE	BACTERIA RESISTANT	FIRE-RESISTANT	GAS CHEMICAL		
	MEAN RANK								
LIVING AREA	85.94	86.96	82.45	78.62	88.44	79.04	83.12	BACTERIA RESISTANT	83.51
DINING AREA	28.33	26.37	28.54	30.19	29.3	29.72	26.89	DUST-FREE	28.48
KITCHEN AREA	36.38	30.75	36.94	34.88	29.47	28.91	31.03	MOISTURE RESISTANT	32.62
BEDROOM	22.14	20.93	20.93	21.29	21.43	18.5	21.43	STAIN RESISTANT	20.95
RESTROOM	10.00	10.75	12.50	12.50	12.50	6.00	7.50	MOISTURE RESISTANT / DUST-FREE / BACTERIA RESISTANT	10.25

Source: Abdul Halim, N., et al., (2021)

Vinyl

The Kruskal-Wallis test (Table 7) indicates that in living areas, fire-resistant vinyl achieved the highest mean rank (111.20, $N = 5$), likely due to its inherent chlorine content that provides some level of flame resistance (Shen et al., 2013). However, the flexible nature of vinyl reduces its fire-retardant capability, necessitating the use of enhanced flame-retardant formulations for improved safety. In dining areas, slip resistance was the most valued feature (43.00, $N = 1$), as matte-finished vinyl surfaces are designed to reduce slipping incidents, especially in spaces with frequent spills (Aman et al., 2019).

For bedrooms, gas and chemical resistance ranked highest (27.00, $N = 1$), where respondents favoured low-VOC vinyl options such as tile vinyl to support healthier indoor air environments (Zhang et al., 2021). Despite these advantages, vinyl is not recommended for kitchens and restrooms because it becomes slippery when wet, increasing the risk of accidents. Vinyl flooring is highly durable and resistant to acids, alkalis, solvents, water, and dirt, making it suitable for high-traffic areas (Patnaik, 2002). It also provides resistance to harmful gases and microbial growth, which contributes to its growing use in healthcare and residential spaces (Matan & Matan, 2007). Nevertheless, one major drawback is its chemical composition, which can negatively affect indoor hygiene unless certified non-toxic or low-emission vinyl brands are selected (Yoon et al., 2011). Sheet vinyl with seams or joints is particularly problematic, as dirt can accumulate beneath the wax layer, fostering an unhygienic environment (Brownell, 2008).

To ensure safety and health, interior designers and architects should recommend environmentally friendly vinyl options that emit minimal volatile organic compounds (VOCs) and meet green building standards (Zhang et al., 2021).

Table 7: The Correlation between Interior Floor Finishes (Vinyl) with Interior Spaces Used and Selection Criteria of Hygienic

INTERIOR FLOOR FINISHES: SELECTION CRITERIA:	VINYL							SELECTED CRITERIA	AVERAGE
	HYGIENE								
INTERIOR SPACES	STAIN RESISTANT	SLIP RESISTANT	MOISTURE RESISTANT	DUST-FREE	BACTERIA RESISTANT	FIRE-RESISTANT	GAS CHEMICAL		
	MEAN RANK								
LIVING AREA	89.80	88.30	72.20	111.10	76.30	111.20	82.10	FIRE-RESISTANT	90.14
DINING AREA	36.50	43.00	39.00	39.00	38.00	40.50	40.50	SLIP RESISTANT	39.50
KITCHEN AREA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NIL	0.00
BEDROOM	26.00	26.50	13.50	13.00	14.00	26.50	27.00	GAS CHEMICAL	20.93
RESTROOM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NIL	0.00

Source: Abdul Halim, N., et al., (2021)

CONCLUSION

The Kruskal-Wallis test analysis reveals that residents select interior floor finishes based on how well they suit the functional needs of each space. In living areas, tiles are preferred for their ease of cleaning and suitability for regular maintenance, which is essential in high-traffic, multifunctional zones. Dust-free timber floorboards are also favoured due to their low-maintenance qualities, while fire-resistant carpets made from polyamide fibres are selected for their heat resistance and durability. Mosaic flooring is appreciated for its fire-resistant properties and its function as passive fire protection in communal areas. Bacteria-resistant marble is chosen for its smooth, glossy surface that supports hygiene and ease of disinfection. Vinyl flooring is also considered, likely due to its inherent chlorine content that offers a degree of flame resistance.

These selections demonstrate a strong resident focus on cleanliness, safety, and practicality in flooring choices. Overall, the findings highlight that users prioritize materials that enhance hygiene, reduce maintenance, and contribute to safer living environments as summarized in Table 8.

Table 8: Comparison of Interior Floor Finishes Based on Functional and Hygienic Performance

Flooring Material	Key Functional Attributes	Hygienic Features	Preferred Interior Spaces	User Priorities Supported
Tiles	Easy to clean, durable, suitable for regular maintenance	Smooth surface minimizes dust and allergen accumulation	Living areas, multifunctional zones	Cleanliness, maintenance efficiency
Timber	Low maintenance, aesthetically warm	Dust-free surface improves indoor air quality	Living and family areas	Hygiene, comfort, reduced allergens
Carpet	Fire-resistant, durable, provides comfort underfoot	Resistant to heat and minimizes risk of fire spread	Bedrooms, lounges	Safety, comfort
Mosaic	Fire resistance as passive fire protection	Smooth, non-porous surface resists bacteria	Community and transition areas	Safety, hygiene
Marble	Durable, glossy finish, visually elegant	Bacteria-resistant, easy to disinfect	Living, dining, and high-contact areas	Hygiene, cleanliness, aesthetics
Vinyl	Flexible, easy installation, cost-effective	Contains chlorine content that enhances flame resistance	Kitchens, service areas	Safety, practicality, low maintenance

Residents in Malaysian tropical homes emphasize flooring materials that balance hygiene, durability, and safety. Preferences reflect awareness of health-oriented design, with surfaces chosen for their ease of cleaning, allergen control, and fire resistance. The data reinforces that functional suitability and hygiene drive flooring selection across interior spaces.

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Received: 28th June 2025. Accepted: 1st October 2025