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Shopping Center (Mall) Design with User Behavior Orientation Approach in Batam City

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ABSTRACT

The development of shopping tourism in Batam City continues to increase as marked by the level of expenditure of the people of Batam City from 2018-2020 increasing by 5.25 percent every year in the food group and non-food group sectors according to data from BPS Batam City. This high interest in shopping has led to the intensive development of shopping centers City. However, the shopping centers that were built still pay minimal attention to behavior patterns and the circulation of mall visitors in Batam City. This research aims to identify visitor behavior and circulation patterns while in the mall through behavioral mapping techniques to determine visitor interests and preferences. The research object used in this research is the Grand Batam Mall. The method used in this research is descriptive qualitative with research data sources obtained from observation, in-depth interviews, and documentation at one of the most successful malls in Batam City. This research data was analyzed based on theoretical studies and secondary data as support. The results of the research show the behavior and circulation patterns of visitors in the mall regarding spatial planning which can be used as a design concept in designing shopping centers in the suburban area of Batam City. The results of this shopping center design are expected to increase the attraction of tourists both domestic and international to support Batam City as a tourist city.

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1. INTRODUCTION

Batam City, as one of the rapidly developing cities in recent years, is certainly not exempt from the construction of buildings, one of which is a shopping center, commonly referred to as malls. According to Maitland (1985) in Utama (2011), a shopping center or mall is a shopping place that has one or more large tenants that serve as attractions for small shops and restaurants, as well as stores facing the shopping center's corridor or circulation area, functioning to facilitate interaction between visitors and sellers (Savitri, 2018). As of 2024, Batam City has 18 malls, which are still unevenly distributed.

Additionally, the geographic location of Batam City, one of the cities in the Riau Islands province, is quite strategic because Batam shares direct borders with neighboring countries such as Malaysia and Singapore (Bapelitbangda, 2019). This certainly opens up the possibility for many tourists from these two countries to visit Batam City for tourism or other activities. One activity that tourists often engage in is visiting malls or shopping centers (Hariyanto & Dewi, 2023). According to data from the Central Statistics Agency, the number of international tourists entering Batam City increased in November 2023, totaling 100.866 visitors. This represents a 25.79 percent increase compared to October 2023, which recorded only 80.189 visitors. Furthermore, the number of visitors in November 2023 was also 25.04 percent higher compared to the same period last year (BP Batam, 2024).

One of the factors that drives the fairly rapid growth of malls or shopping centers in Batam City is the behavior of the people of Batam City which tends to be consumptive. Based on data recorded by BPS Batam City, the level of expenditure for consumption by the people of Batam City in the food and non-food group sectors from 2018-2020 continues to increase every year with an average increase of 5.25 percent each year. The highest rate of increase came from the non-food group sector, with an increase rate of 24.35 percent from 2018 to 2019 (Badan Pusat Statistik Kota Batam, 2020).

The people of Batam City tend to shop at malls rather than traditional markets because malls can offer comfort, cleanliness, and safety for visitors when shopping (Syoufa, Ade; Hapsari, 2014). The mall also offers a "One Stop Shop" concept, which provides a wide selection of products in one location, making it easier and saving visitors time to fulfill their needs (Lu et al., 2021).

The high interest and enthusiasm of the people of Batam City in shopping and visiting malls, has resulted in quite rapid mall development in Batam City. However, of the malls that have been built and operated, some have been successful and some have been unsuccessful. The latest observations on the condition of malls in Batam City show that there is an imbalance in the number of visitors between one mall and another and there are several malls that still lack visitors.

To create a long-term and busy shopping center, research is needed on the success of mall design that is influenced by user behavior. A mall in the center of Batam City should be designed by implementing user behavior orientation as a form of appreciation for the public's high interest and enthusiasm in shopping and become a means for the community and foreign tourists to fulfill their shopping and recreation needs.

Based on the issues described above, the problem can be formulated as follows: what are the criteria for malls in Batam City that are of greatest interest to visitors, what is the appropriate concept for spatial planning and tenants in malls that are quite successful in Batam City, and how do application of the concept of user behavior orientation in mall design in Batam City. Meanwhile, this research aims to identify the criteria for malls in Batam City that are of greatest interest to visitors, understand the concept of appropriate spatial

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planning and tenants in malls that are quite successful in Batam City, and find out the application of the concept of user behavior orientation in mall design in Batam City.

2. LITERATURE REVIEW

2.1. Mall

According to the International Council of Shopping Centers or ICSC (2013), a mall is a building where various retail and commercial activities are planned and developed, as well as providing parking for users of the building (Ashtar, 2020).

Meanwhile, according to Presidential Regulation of the Republic of Indonesia Number 112 of 2007, Concerning the Arrangement and Development of Traditional Markets, Shopping Centers, and Modern Stores, a shopping center is one or more buildings designed both vertically and/or horizontally. There are spaces in the building that are rented or sold to people who run businesses in the mall to carry out trading activities for visitors (BPK RI, 2007).

Besides that, malls also have an economic function, namely to support a dynamic economy and to store and distribute products from producers to consumers (Maitland, 1985). Malls or shopping centers are divided into several classifications such as transaction systems and service scale. Based on the transaction system, according to Marlina (2008), it consists of wholesale and retail.

2.2. Behavioral Architecture

According to Randal and Egam (2018), the word behavior refers to humans in their behavior and can be related to physical human activities, as well as reciprocal relationships between humans and humans or humans and their living environment (Septiawan et al., 2018).

According to Setiawan and Hariadi (1995), the variables that influence behavior are space, size and shape, furniture and arrangement, color, as well as sound, temperature, and lighting (Septiawan et al., 2018).

Behavioral architecture is a field of architectural science whose implementation always includes behavioral considerations in design. Behavioral architecture addresses the relationship between human behavior and its environment. Of course, this cannot be separated from the discussion of psychology which is often interpreted as a science that studies human behavior and the environment (Septiawan et al., 2018).

2.3. Behavioral Mapping

The behavioral mapping technique is an effort to obtain a picture of user behavior. Behavioral mapping techniques were perfected by Ittel in the 1970s (Hidayat et al., 2018). Behavioral mapping is carried out by mapping in the form of sketches or diagrams showing areas where humans carry out activities to illustrate human behavior in an area (Agustapraja, 2018). The aim is to illustrate actions on a map, determine categories and time frequencies, and indicate the relationship between these actions and specific design forms (Setiawan & Haryadi, 2010).

Behavioral mapping using place-centered mapping. This technique is used to identify how people or a group of people utilize, use, or accommodate their behavior in a certain situation, time, and place (Sari et al., 2019). Steps in mapping based on place, among others:

1. Create a sketch of the space to be observed
2. Make a list of behaviors that are being observed
3. Mark and annotate each behavior
4. Record the various behaviors that occur in the space

2.4. Circulation

According to D.K Ching, in his book Architecture: Form, Space, and Order (2007), circulation is defined as a 'rope' that connects one room to another or a series of interior or exterior spaces that cause them to be connected. Circulation is very important in malls

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because circulation in malls functions as a connecting component between retail and the inside and outside of the building which can provide safety and comfort for visitors (Lusiana & Mayang Sari, 2014).

According to Andyono (2006), circulation in shopping centers is divided into two types, namely horizontal and vertical circulation. Horizontal circulation such as corridors, connecting bridges, and atriums. Meanwhile, vertical circulation takes the form of escalators and elevators (Ischak & Walaretina, 2019).

2.5. Tourism

According to Harahap (2018), tourism is a travel activity that can be carried out by individuals or groups of people by visiting certain places with the aim of recreation, self-development, or learning about the uniqueness of the tourist attractions visited within a certain time. Meanwhile, a tourist attraction is a place that is a center of attraction, especially a place that can provide satisfaction to visitors (Maesti et al., 2022).

Therefore, it can be concluded that tourism is an activity carried out by people during holidays, whether it be visiting historical sites, entertainment venues, recreational areas, and more. Tourism can be divided into historical tourism, educational tourism, shopping tourism, and many others.

3. METHODS

The research was carried out qualitatively using descriptive analysis methods. Primary data sources in the research were obtained from direct observation at intervals of two weeks and documentation of behavior patterns and visitor activity zoning with the research object Grand Batam Mall. The selection of research objects for the Grand Batam Mall was based on the results of the highest respondents regarding the most frequently visited malls in Batam City.

Apart from that, wayfinding mapping was also carried out at the Grand Batam Mall which aimed to observe visitor movements and activities while at the mall. Wayfinding mapping uses a place-centered mapping method. In-depth interviews were also conducted with ten visitors at the Grand Batam Mall, aged 18-50, to find out visitors' interests and preferences towards the mall.

Apart from searching for existing data in the field, secondary data was gathered from references and literature reviews from various journals and articles over the past ten years. Research and data processing at the mall was carried out cross-sectionally.

The stages of the research methodology begin with identifying topics in the form of appropriate spatial and tenant layout patterns and visitor behavior while in the mall. Then, they continued with a literature study using behavioral architecture theory and visitor behavior mapping. The case study was conducted at the Grand Batam Mall based on the results of the highest respondents to the most successful mall in Batam City. Primary data was collected through questionnaires and interviews with visitors to the Grand Batam Mall, as well as observation and documentation. In addition, a search for secondary data was also carried out from literature studies of articles and journals over the past ten years. The results of the data obtained in the field were analyzed in depth and design planning was carried out to produce design recommendations in the form of concepts for appropriate spatial and tenant layout patterns in the mall that adjust to visitor behavior in Batam City so that they can be implemented in the design of subsequent malls in Batam City.

The research design of “Shopping Center (Mall) Design with User Behavior Orientation Approach in Batam City” is summarized in the research methodology diagram as shown in Figure 1 below.

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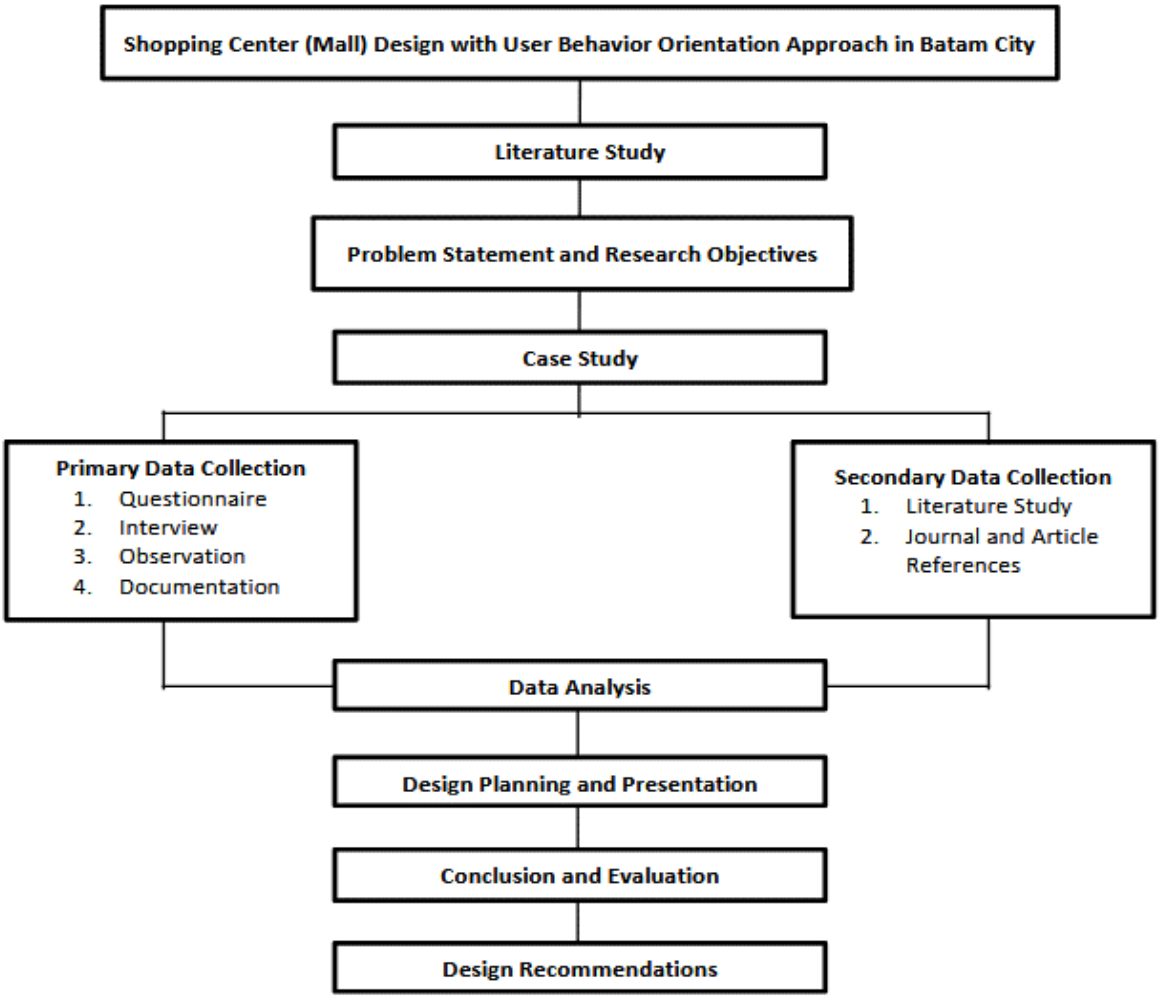

Figure 1: Research Metodhology Diagram
Source: Author, 2024

4. RESULTS AND DISCUSSION

4.1. Existing Condition of Spatial Planning of Grand Batam Mall

Grand Batam Mall adheres to a modern concept that presents a shopping center that is contemporary and has a luxurious feel. Grand Batam Mall itself has an area of around 60,000 m2 (not including the parking area) and a rentable area of 48,000 m2 (grandbatam.com, n.d.). The mall building has 5 floors and a rooftop as a vehicle parking area. To access each floor, visitors can use an elevator or escalator, except for the rooftop which can only be accessed via an elevator. The supporting facilities at the Grand Batam Mall are quite complete, marked by the presence of a prayer room, toilets, parking, and an information center. Grand Batam Mall itself is divided into several zones on each floor which can be seen in Table 1.

Table 1. Grand Batam Mall Zoning

Floor	Zoning
LG	Groceries and food & beverage area
GF	Fashion, beauty, and F&B area
1	Retail, fashion, home living area
2	Retail and home living area
3	Entertainment and F&B area
Rooftop	Parking area

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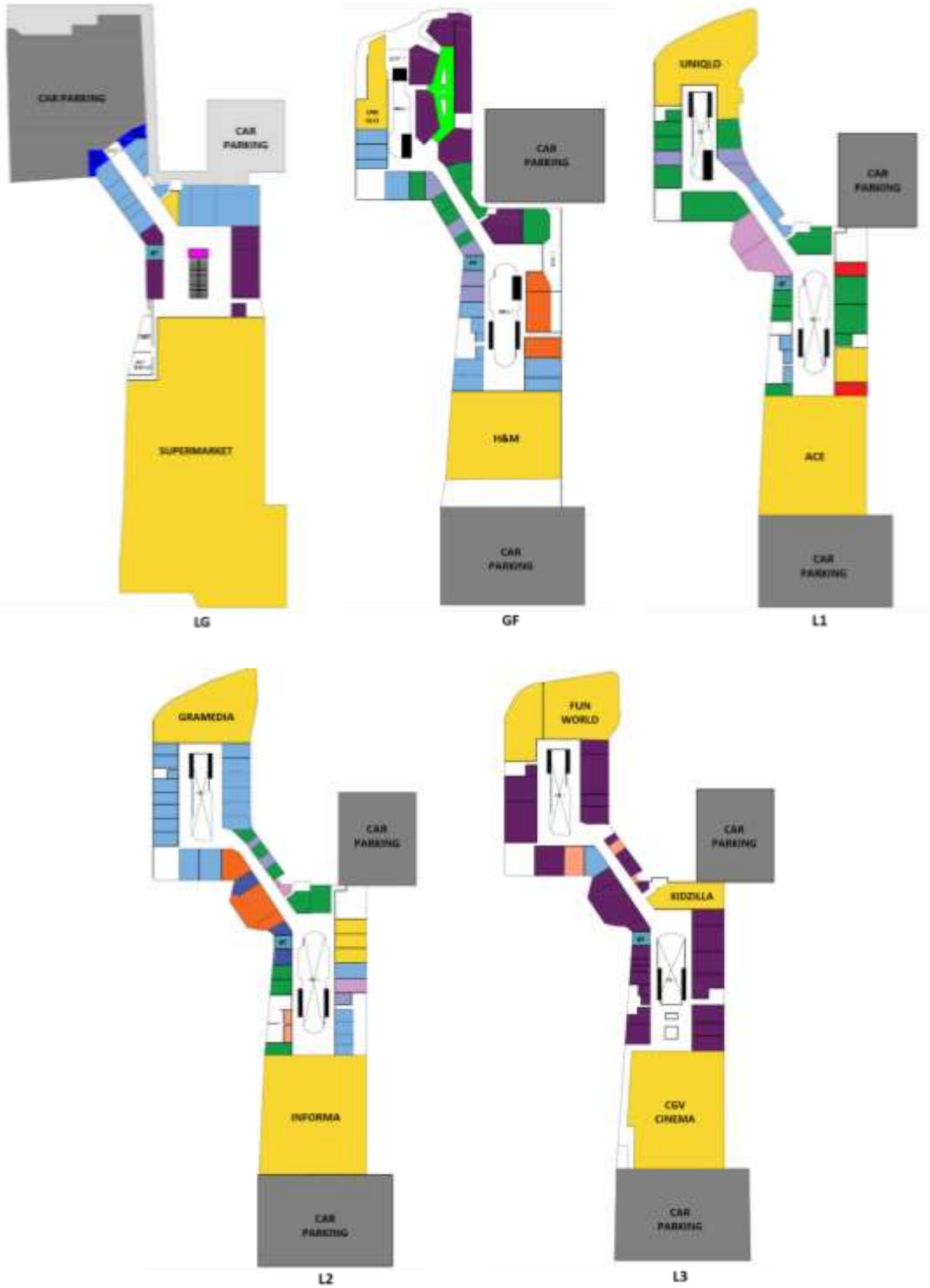

Figure 2: Grand Batam Mall Plan
Source: Grand Batam, 2024

4.2. Analysis of Visitor Circulation and Behavior at Grand Batam Mall

The LG (Lower Ground) floor of Grand Batam Mall is a parking, supermarket, and F&B area. On this floor, there is only 1 escalator point and there is 1 magnet (anchor), namely the supermarket. The arrival point comes from lobby 4. The results of wayfinding observations show that visitors need to explore deep enough to reach the supermarket (magnet) so this is certainly an advantage for other tenants that are frequently passed by visitors and allows for unplanned purchases by visitors (Andi et al., 2020). Meanwhile, lobby 3 is only a waiting area and pick-up area for visitors who have finished shopping. For visitors who want to quickly

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and practically shop at health and beauty tenants to save the time needed to reach the supermarket.

The observations of visitor behavior on the LG floor show the dominance of walking, standing, and shopping activities. Standing and walking activities are quite dense in the meeting point area between supermarkets and F&B stalls because this area is a route for visitors to the supermarket. Meanwhile, most shopping activities are found in supermarket areas as anchor tenants on the LG floor of Grand Batam Mall.

On the LG floor, there are not many sitting areas and waiting areas. The seating area is only found in lobby 3 and at the cashier area in the supermarket. The toilets on the LG floor are only 1 point away from the supermarket and close to the entrance to lobby 3. The placement of emergency evacuation routes is spread quite evenly, which is marked by the presence of 2 evacuation route points, each of which is located in the corridor area of lobby 4 and next to the toilet.

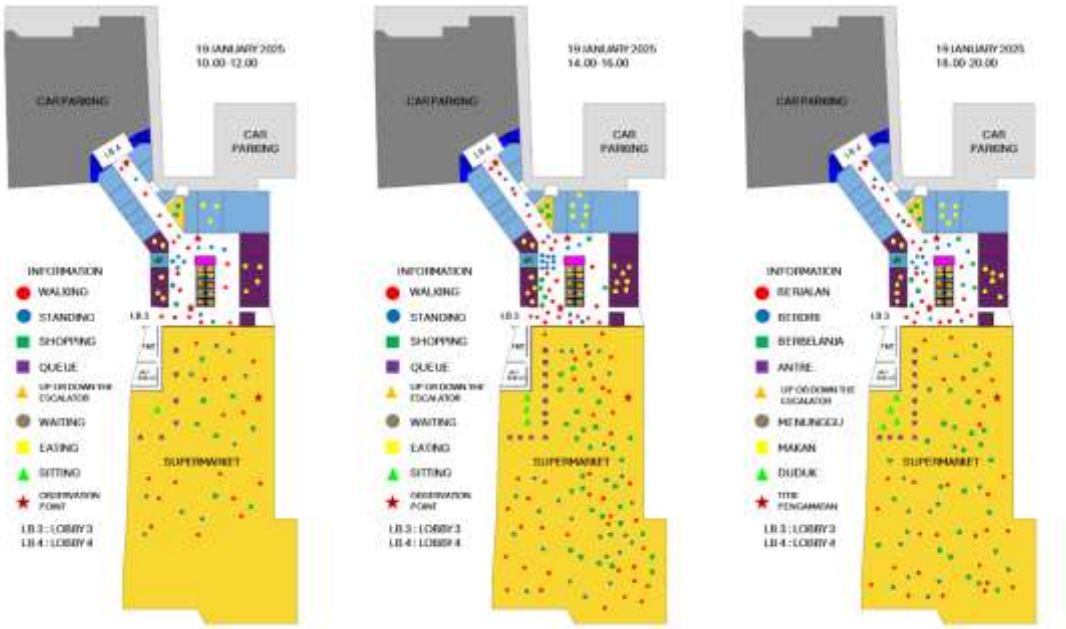

Figure 3: Visitor Circulation Patterns on the Lower Ground (LG) Floor of Grand Batam Mall
Source: Author, 2024

Figure 4: Atmosphere of the Supermarket Area
Source: Author, 2024

The ground floor (GF) of Grand Batam Mall is the most vital part of the mall which is dominated by magnets (anchor tenants). In total, there are 5 main magnets distributed evenly along the ground floor. Apart from that, the placement of fashion tenant magnets is deliberately separated from end to end so that visitors do not just pile up in one area and are separated in the Atrium 1 and Atrium 2 areas. The circulation flow of visitors coming from lobby 1 is dominant towards atrium 2, some enter the fashion tenants, and some follow the escalator line to the 1st floor. Meanwhile, visitors coming from lobby 3 partly walk along the ground floor, to atrium 1, and follow the escalator line to the basement or 1st floor. Apart

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from that, visitors who ride motorbikes enter the mall through the fashion tenant, walk around, and try on clothes in that tenant's store.

The observations of visitor activities on the GF floor of the Grand Batam Mall show quite a variety of activities, such as walking, standing, shopping, eating, going up or down the escalator, and sitting. Walking and standing activities predominantly occur in the atrium 1 and 2 corridors. Shopping activities are often found in fashion tenant magnets, sports equipment tenants, and retail. Some visitors enjoy culinary delights at F&B tenants.

On the GF floor of Grand Batam Mall, it is very easy to find waiting areas and sitting areas. The seating areas on this floor are quite spread out in several areas, namely in front of the fashion tenant area, along the corridor connecting atriums 1 and 2, as well as in the lobby 1 area where there is drop off and pick up. Observation results show that the sitting area and waiting area at Grand Batam Mall are quite crowded with visitors, especially on holidays.

Figure 5: Sitting Area and Waiting Area at Grand Batam Mall
Source: Author, 2024

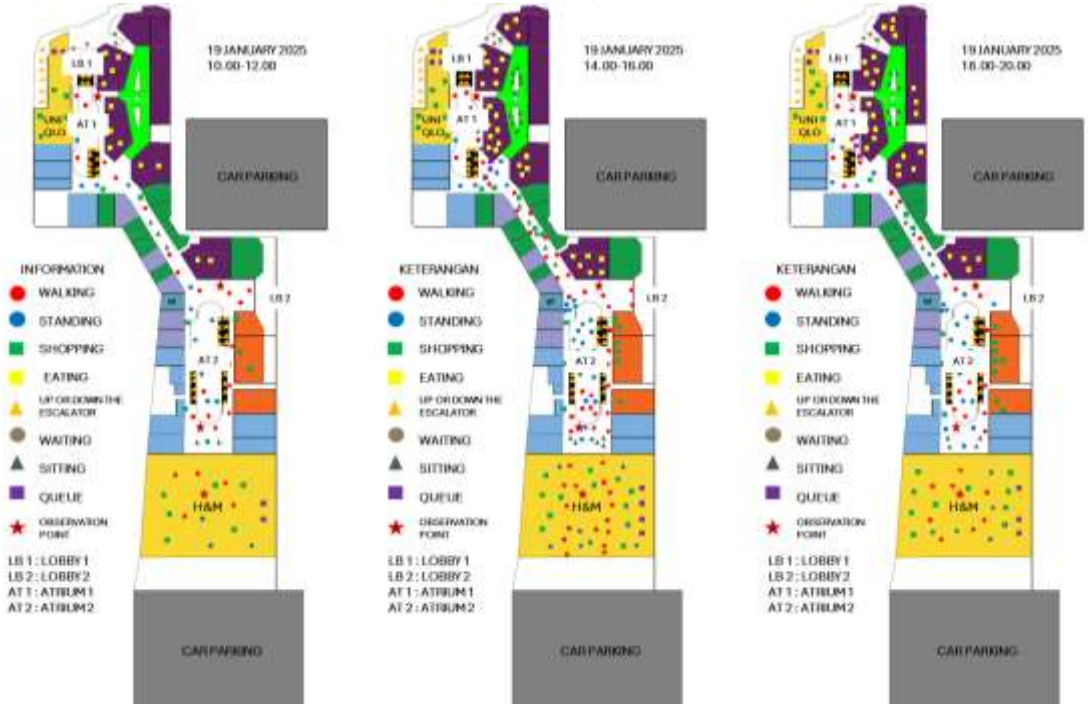

Figure 6: Visitor Circulation Patterns on the Ground Floor (GF) of Grand Batam Mall
Source: Author, 2024

Figure 7: Atmosphere of the Fashion Tenant
Source: Author, 2024

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The 1st floor consists of 34 tenants, 3 magnets (anchors), and 2 escalator points. Observation results show that pedestrian circulation in void area 1 (marked with a green circle in Figure 8) is less accessible to visitors. This is because visitors tend to avoid circulation branches with sharp turning angles and are further away (Andi et al., 2020). Most of the visitors who take the escalator predominantly go straight to the pedestrian void 2 area so the tenants in that area are quite quiet and it is quite difficult to find potential buyers. Most visitors who enter from the car parking area will enter the mall through household equipment tenants, which can be a potential for these tenants to target potential buyers who are looking at goods while walking into the mall. The room arrangement on the 1st floor of Grand Batam Mall adheres to the cul de sac principle which comes from French, which means the arrangement of anchor tenants at the very end and supporting tenants standing along the road to the anchor (Rao et al., 2018).

The observations of visitor behavior on the 1st floor of Grand Batam Mall showed walking, standing, shopping, and sitting activities. Visitors tend to walk and sit in void 2 pedestrian areas. Most visitors predominantly stand in front of the anchor tenant while looking at the products sold by that tenant. Most visitors were seen shopping at anchor tenants for fashion, household goods, and retail.

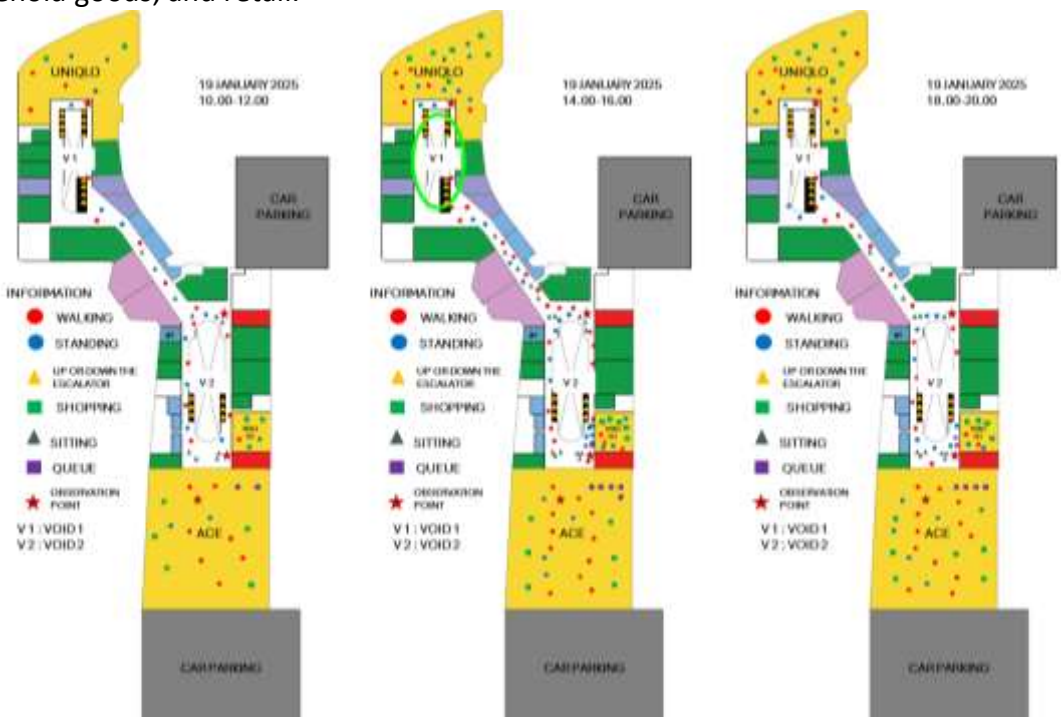

Figure 8: Visitor Circulation Patterns on the 1st Floor of Grand Batam Mall
Source: Author, 2024

The 2nd floor consists of 45 tenants, has 3 magnet (anchor) tenants, and has 2 escalator points and 2 void areas. Likewise with the 1st floor, the front area is an area that is less accessible to visitors due to the lack of magnets, several tenants are still empty, and it has sharp turning corners (Andi et al., 2020). There were only a few visitors who visited the bookstore tenants. Visitors on the second floor predominantly explore the pedestrian area at the back leading to the retail tenant magnet. Apart from that, visitors who enter from the parking area go through furniture tenants which can be an advantage for these tenants in targeting potential buyers passing by.

The observations of visitor activities on the 2nd floor of Grand Batam Mall were dominated by walking, sitting, and shopping activities. Visitors walk and shop more in the void 2 corridor

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area because this area has more tenant magnets. Several visitors were seen sitting on benches in the area along the corridor connecting void 1 and void 2.

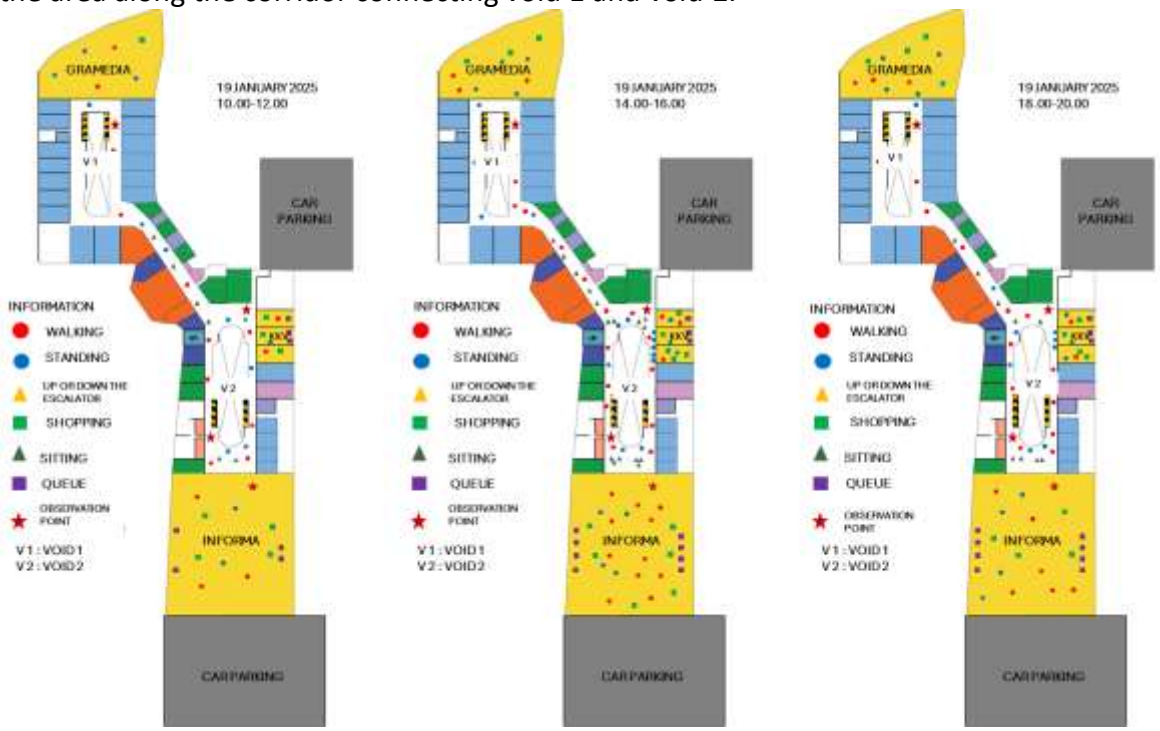

Figure 9: Visitor Circulation Patterns on the 2nd Floor of Grand Batam Mall
Source: Author, 2024

Figure 10: Atmosphere of the Retail Tenant
Source: Author, 2024

The 3rd floor is the highest area of Grand Batam Mall and is dominated by F&B and entertainment tenants. The magnet tenants on the 3rd floor are a cinema and playground. The F&B and restaurant areas are placed on the top floor so that visitors who want to look for food or entertainment need to explore each floor to the top floor. This can certainly be an advantage for tenants at the bottom so they can easily target potential buyers (Andi et al., 2020).

The observations of visitor activities on the 3rd floor of the mall showed that most activities are eating, walking, and playing. This is because the 3rd floor of Grand Batam Mall is dominated by F&B and entertainment tenants. Some visitors were also seen sitting on the benches provided in the cinema.

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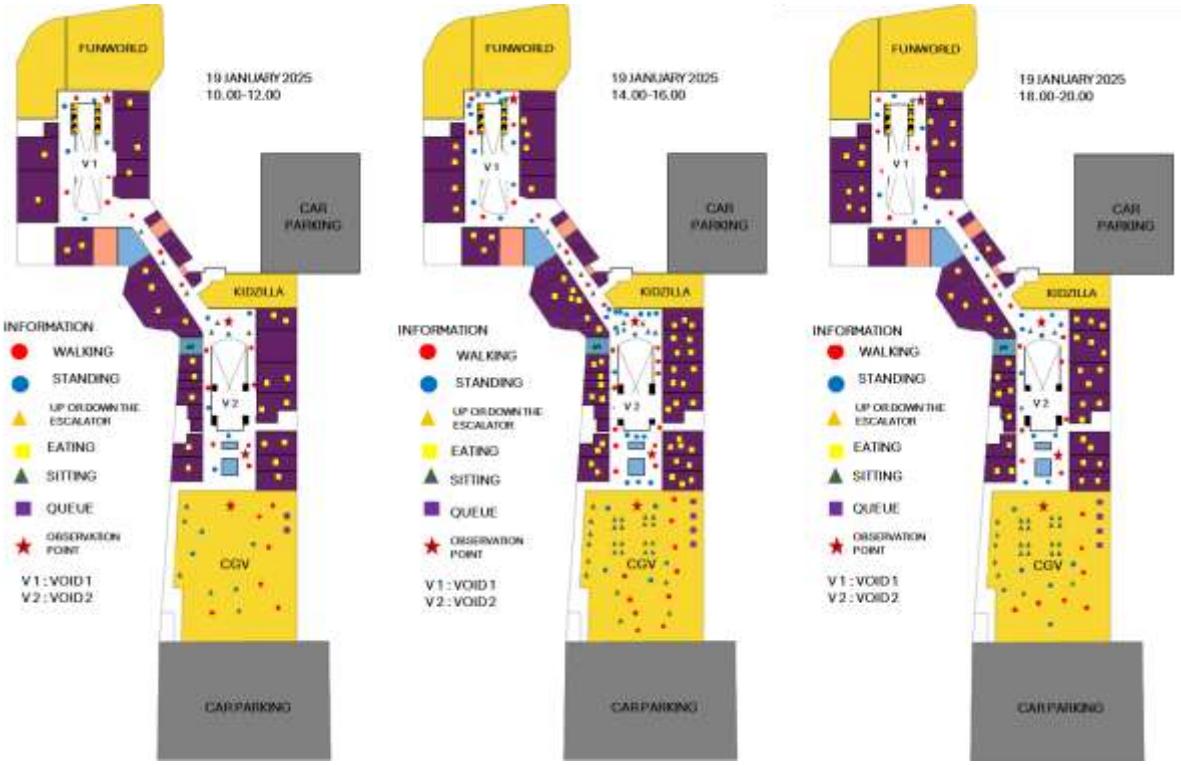

Figure 11: Visitor Circulation Patterns on the 3rd Floor of Grand Batam Mall
Source: Author, 2024

Based on the results of this analysis, it can be stated that Grand Batam Mall adheres to a linear type of circulation path configuration. According to D.K Ching, linear circulation is a straight path that forms a row of spaces or tenants (Pynkyawati et al., 2014). The linear circulation pattern at Grand Batam Mall can connect tenants of the same or different categories and can direct visitors from Atrium 1 to Atrium 2 or vice versa (Az Zahra & Salayanti, 2018).

The arrangement of tenants in the Grand Batam Mall is connected by three types of spatial circulation. According to D.K Ching's architectural theory, the three types of spatial circulation are circulation pass by spaces, circulation pass through spaces, and circulation terminate in a space (Tan & Aji, 2022).

1. Circulation pass-by spaces at the Grand Batam Mall can be found in the cinema area, household equipment tenants, furniture tenants, and fashion tenants which are areas that must be reached by visitors entering from the parking area.
2. Circulation pass-through spaces at Grand Batam Mall are marked by visitors walking from the LG floor to the 3rd floor passing many tenants along the way.
3. Circulation terminates in a space when visitors go to the supermarket, where this area becomes a stopping point for visitors to shop and circulation stops in one space.

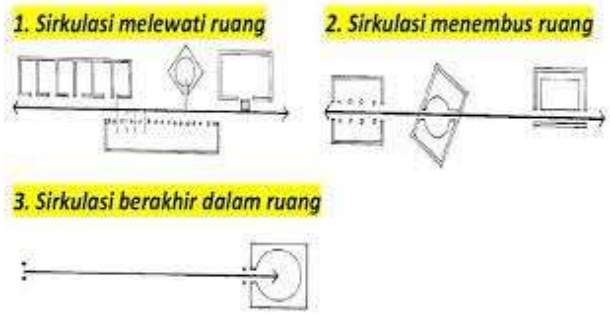

Figure 12: Types of Space-Connecting Circulation
Source: Ching, 2007

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4.3. Interests and Preferences of Grand Batam Mall Visitors

To identify the desired tenant categories in mall design, interviews were conducted with Grand Batam Mall visitors as a reference and consideration in the design of the next mall. The results of the interviews can be seen in Tables 2 and 3.

Table 2. The Purpose of Visitors When Visiting Mall

ACTIVITY	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Shopping for household needs	✓	✓	✓		✓	✓			✓	✓
Buy clothes		✓	✓	✓			✓			
Buy food or beverage	✓		✓	✓		✓		✓	✓	
Watch at the cinema	✓	✓			✓	✓	✓	✓		✓
Enjoy the mall atmosphere			✓	✓	✓		✓	✓	✓	✓

Note: S = source person

Table 3. Tenant Categories that Visitors Want in the Mall

TENANT CATEGORY	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Supermarket	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Children's playground	✓	✓		✓			✓		✓	
F&B zone	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Anchor Tenant	✓		✓	✓	✓		✓	✓	✓	✓
Cinema	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Electronics, Gadgets, Technology		✓			✓				✓	
Home Equipment			✓		✓	✓		✓		✓
Beauty & Wellness	✓		✓				✓			✓
Sports	✓	✓		✓			✓		✓	✓

Note: S = source person

The results of interviews with visitors to the Grand Batam Mall identified that a mall or shopping center must have supermarkets, a cinema, and an area that sells food and drinks (F&B Zone). The supermarket that is popular with mall visitors in Batam City is the type of supermarket that can provide complete needs at affordable prices. Other tenant categories in the mall are considered supporting tenants between the magnets (anchors). The electronics and technology tenant category is of the lowest interest to mall visitors because of its less varied availability and higher prices.

4.4. Mall Design Concept

The mall design location is targeted to be east of Batam City, which is the meeting point between the Botania and Nongsa areas, as shown in Figure 13. The site measures 5 Ha and is in an area that can connect the Botania and Nongsa communities. It is fairly active in trade and services.

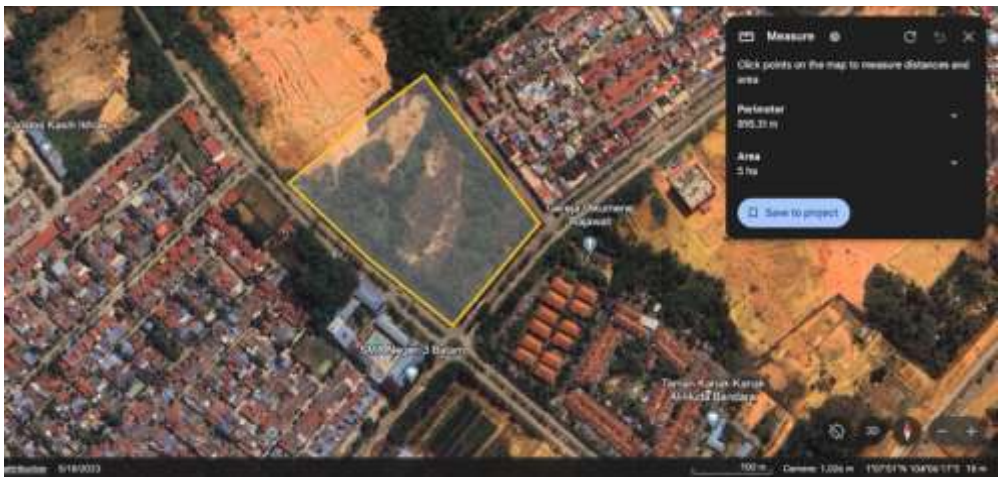

Figure 13: Location Map of Mall Design
Source: earth.google.com, 2024

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The right mall design concept not only focuses on the interests and preferences of visitors but also requires a design that adapts to circulation patterns and visitor behavior when in the mall. According to Frich, Northen, and Haskoll (1977) in (Syoufa, Ade; Hapsari, 2014), successful retail space arrangement patterns follow existing conditions in American malls, namely having the shape of the letters I, L, or T. Retail space arrangement patterns In malls that are shaped like the letters I, L or T, they can form a structured circulation pattern, a more even distribution of visitors at every point, and tenants that are easy for visitors to reach. The spatial arrangement pattern in the design of this mall is designed to be slightly curved to avoid a saturated and monotonous impression.

Apart from that, the ease for visitors to find sitting areas and waiting areas in the mall is one of the factors in the success of malls in Batam City. This is because walking around the mall is a tiring activity, so visitors tend to look for a place to sit and rest. Apart from being a place to rest, it also functions as an area to wait for the family to shop. The placement of seating areas in malls needs to be considered in such a way as not to disturb or hinder the flow of visitor circulation. The ideal placement of sitting areas and waiting areas in malls should be placed at several points, such as in the middle of the mall corridor, under escalators, and in open spaces in the mall area (Rudyanto, 1994).

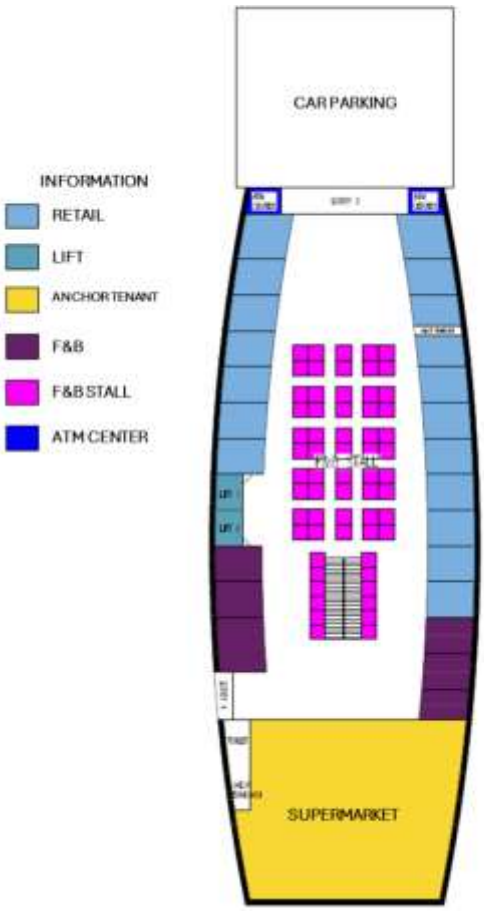

Figure 14: Royal Batam Mall Lower Ground (LG) Schematic Plan
Source: Author, 2024

The LG (Lower Ground) floor of Royal Batam Mall is a grocery cluster, which is characterized by the presence of supermarkets. The placement of supermarket is placed on the bottom floor of the mall which aims to facilitate the movement of goods from vehicles to the loading dock which is then forwarded to the supermarket warehouse. Apart from that, the placement of the supermarket on the LG floor is also supported by the presence of a

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parking area and lobby area which are located next to the supermarket. This can certainly make it easier for visitors to carry shopping items back to their vehicles. Apart from that, an F&B area is also provided which is dominated by MSME (Micro, Small, and Medium Enterprises) snack tenants. The F&B area is located in front of the supermarket to target visitors who want to find a snack after shopping.

On the LG floor of the Royal Batam Mall, visitors are also provided with several facilities. There are toilets, disabled toilets and a nursery room which are located next to the supermarket so they are easily accessible to visitors. In lobby 4, a free lounge is also provided which functions as a waiting area for pick-up and drop-off points.

The LG floor of the mall has one lift and an escalator point. The escalator point on the LG floor of Royal Batam Mall is placed in the meeting area between the supermarket and the F&B area which forms a node. The type of escalator used on this floor is a paired parallel escalator, two escalators located side by side in the middle of the void area. According to Coleman (2006), this type of escalator is used to provide a wider view of the tenants in the mall (Lusiana & Mayang Sari, 2014).

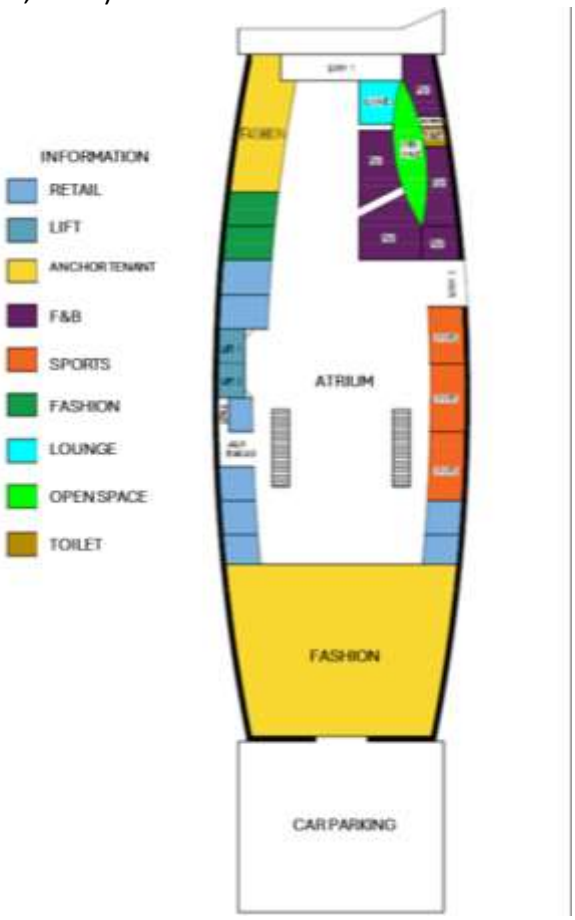

Figure 15: Royal Batam Mall Ground Floor (GF) Schematic Plan
Source: Author, 2024

Apart from the facilities provided to visitors, Royal Batam Mall also provides facilities for tourists entering Batam City. On the GF floor, tourists are provided with free lounge facilities. Apart from that, a shuttle bus service is also provided with a predetermined departure time. With the facilities provided, it is hoped that it can attract tourist interest and make the Royal Batam Mall the first destination point for tourists entering Batam City.

The ground floor (GF) of Royal Batam Mall is a fashion & accessories cluster. The GF floor of the Royal Batam Mall is dominated by clothing and jewelry tenants. Apart from that, on

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the GF floor, there are also two fashion tenants (anchor) which are located separately in the front and back areas.

The facilities provided to visitors on the GF floor are a waiting area as well as a large drop-off and pick-up area in lobby 1 and lobby 2. At the front of the mall, there is also an open space that functions as a seating area, smoking area and to enjoy the outdoor atmosphere of the mall. The place for seating benches on the GF floor is placed at several points, such as in the open space area and the middle of the corridor inside the mall.

The GF floor of the Royal Batam Mall has one escalator and elevator point which is located in the middle of the mall atrium. The type of escalator used is a pair escalator which has a pair of positions. According to Coleman (2006), this type of escalator has a separate position and is located in the same direction as the initial pair of escalators. Pair-type escalators are used in malls to create a direction of visitor movement that moves up or down consistently (Lusiana & Mayang Sari, 2014).

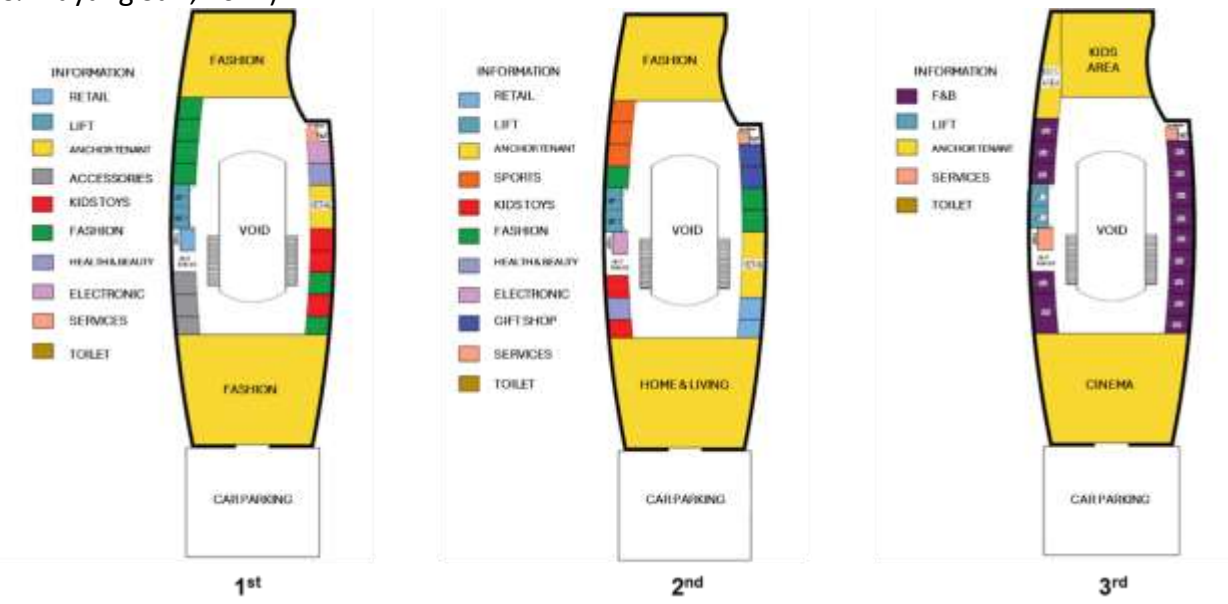

Figure 16: Royal Batam Mall 1st - 3rd Schematic Plan
Source: Author, 2024

The 1st floor and 2nd floors of the Royal Batam Mall have a similar concept to the GF floor, namely the fashion & accessories cluster. These two floors are dominated by clothing, beauty products, jewelry, and retail tenants. The fashion and retail tenants (anchor) are placed on the same floor to target potential buyers among young people. These two types of tenant magnets offer a modern and up-to-date shopping concept, an aesthetic shopping place, and provide quality products at affordable prices.

The 3rd floor, the top floor of the Royal Batam Mall, is the food & entertainment area. On the 3rd floor, tenants are selling various kinds of food and there is a cinema and play area for children. The purpose of placing the food area on the top floor is so that visitors need to explore the entire floor of the mall before reaching the food area. This can certainly provide benefits for tenants on the lower floors in encouraging unplanned purchases by visitors. Placing the cinema on the top floor to utilize space without columns requires a higher room height to use tiered seats.

The placement of supporting facilities on the 1st to 3rd floor of the mall is almost the same as the GF floor. The placement of escalators and lifts is in the central area of the mall. The position of the escalator is placed separately in the middle of the void area to give visitors wider visibility of the inside of the mall (Lusiana & Mayang Sari, 2014). On the 1st to 3rd floors of the mall, benches are also provided for visitors in the middle of the corridor inside the mall.

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From the GF floor to the 3rd floor of the Royal Batam Mall, there are 2 toilet points, a disabled toilet, and a nursery room which are located separately in the front and middle areas of the mall so that they are easier for visitors to reach.

Apart from providing facilities to visitors, Royal Batam Mall also pays great attention to the safety and security of visitors when an unwanted disaster occurs. Royal Batam Mall provides 8 evacuation route points spread throughout the mall. Each evacuation route leads directly to an emergency exit which connects directly to the emergency exit access route. Based on Minister of Public Works Regulation no. 26/PRT/M/2008 Concerning Technical Requirements for Fire Protection Systems in Buildings and the Environment, the minimum emergency door opening width is 80 cm, the emergency door opening swings towards the emergency stairway, and the location is easy to reach for visitors (Puspitasari, 2022). Apart from that, there are 2 assembly points at the Royal Batam Mall which are located outside the mall building. The assembly point is provided as the destination of the evacuation route which has access to a public road.

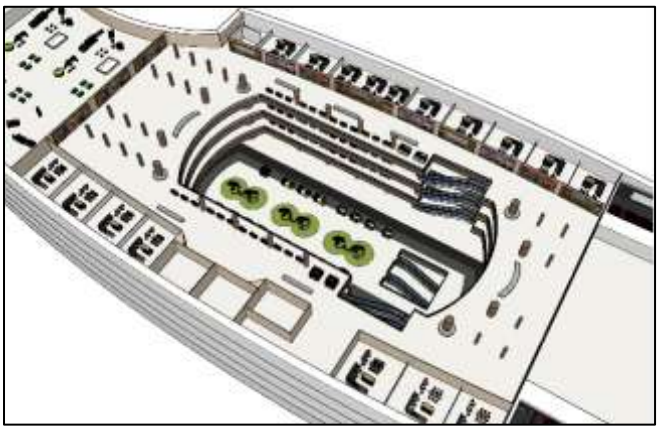

Figure 17: Isometric View of Royal Batam Mall Circulation
Source: Author, 2024

The placement of tenant magnets (anchors) also influences visitor circulation patterns. Anchor tenants should be placed separately at the ends of both sides of the mall so that they can provide benefits to nearby tenants and create a ping pong effect. The ping pong effect is the formation of a circulation of visitors that continues to flow throughout the mall area without any dead areas, unexplored areas, or hidden areas (Syoufa, Ade; Hapsari, 2014).

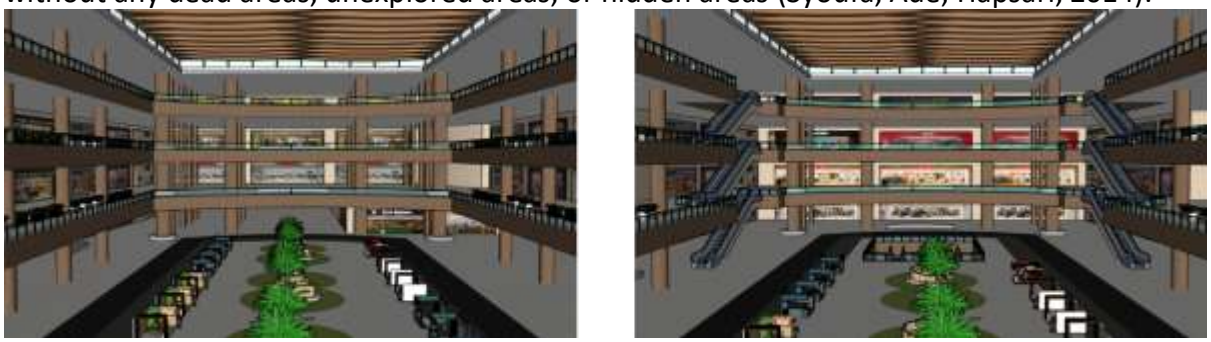

Figure 18: Anchor Tenant Layout Pattern of Royal Batam Mall
Source: Author, 2024

5. CONCLUSIONS

The construction of shopping centers or malls in Batam City in the last few years has continued to develop quite rapidly due to increasing public interest and enthusiasm in visiting malls and shopping. However, the development of malls in Batam City still lacks attention to visitors' preferences and behavior patterns in the design process, causing malls to be less than

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optimal. Therefore, this research examines and studies the appropriate spatial planning and circulation patterns in the most successful malls in the city of Batam to solve mall design problems and find design solutions to be applied in the design of the next mall which is targeted at the edge of Batam City. The identified design solutions consist of the problems of placing anchor tenants, arranging supporting retail spaces, placing mall facilities, as well as good and structured circulation patterns.

Anchor tenant placement should be done evenly at each end of the mall and spread across each floor. The presence of magnets on each floor causes the distribution of visitors to be even and the flow of visitor circulation continues to flow consistently.

It should be remembered that this research only focuses on spatial planning and circulation patterns in the mall, so the researcher hopes that this research can be continued by future researchers by focusing more on the dimensions of each room in the mall and the research will be carried out over a longer time interval.

It is hoped that this research can contribute to creating a busy and sustainable shopping center in Batam City, support the growth of tourism and economic potential in Batam City, and open up new job opportunities in Batam City.

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