Interior Design of Public and Accommodation Spaces for A 5000 GT Ferry Ro-Ro

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***Abstract* - currently in Indonesia, the need for maximum service in terms of passenger transportation on ships needs to be increased in order to compete with other modes of transportation such as airplanes and trains. The lack of customer satisfaction is caused by several factors such as the condition of the facilities and the comfort of the passengers on the trip. The quality of the facilities and services of the passenger ship can be improved by redesigning the interior of the public facilities and accommodation space for the passengers of the ship. The interior design is carried out to increase public interest in using the services of the ferry. Based on the results of a survey of ship passengers' opinions, it is known that passenger comfort can be improved, especially on the factors of cleanliness, room arrangement, air circulation, rejuvenation of the room as well as interior visuals that are made more attractive. The result of conceptualizing and designing the interior of the ship is that it is necessary to have an interior design that is popular with the public, has its own characteristics, attracts public attention, and is simple and not shabby design. The design concept that fits the needs above is the Avant basic concept because this design theme is a translation of current design trends and presents its own characteristics for the ship. Interior rearrangements and furniture adjustments were made according to the activities on the ship and adjusted to the passenger comfort factor according to marine standards while taking into account the statutory regulations.**

Keywords - design, furniture, interior, passenger, statutory.

I. INTRODUCTION

The design of the ship is carried out from the main dimension, construction, and general plan, to the interior design. Interior design in general is the process of arranging interior elements so that they become a unit that is so closely related to achieving certain goals such as aesthetic aspects, security, and room comfort [1]. The elements in interior design are floor, wall, ceiling, aesthetic element (proportion, space scale, balance and unity of the room, furniture), aperture (windows, doors, ventilation), and lighting [2]. Interior design on ships can create improvements in the development of the shipping industry as well as the comfort of passengers or crew living on ships and can make the ships more competitive in the market [3].

Every business, especially transportation, is expected to be able to provide superior services to its competitors, with the ultimate goal of meeting or exceeding the expectations of users of transportation services. If implemented successfully, customer satisfaction will be achieved. Satisfaction is the level of feeling in which a person states the results of a comparison of performance or services received or expected [4]. Customer satisfaction or dissatisfaction is a hot topic discussed at international, national, industry, and corporate levels. Customer or passenger satisfaction is determined by the quality of goods and services that customers want, so quality assurance is the main priority of every business and is now used as a benchmark for the advantage of a company's competitive position. Customer decisions will be made after obtaining and using products and services according to their wishes. Customer satisfaction is considered an indicator of future business success. Cross-border transportation must have perfect services and facilities to create a safe and comfortable environment for passengers [5].

The maritime sector is an important point of development in Indonesia. However, the characteristics of Indonesian transportation are still seen as having low service quality, and limited quantity or service coverage [6]. Indonesia is still lower in ranking on the Global Competitiveness Index (GCI) by the World Economic Forum compared to countries in the Southeast Asian region. Infrastructure comparison data shows that Indonesia's connectivity index ranking in the transportation sector, especially sea transportation is still

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in the lowest position when compared to other transportation sectors [7].

There are still a lot of passenger ships that are not satisfactory if we look at the comparison of passenger perceptions with the services and facilities obtained. Factors that make the level of passenger comfort and the feasibility of ship services have not been well organized, namely because of the lack of ship quality improvements that can show the ship's proper advantages [8]. Many passenger ships do not meet the quality requirements for cleanliness, completeness, feasibility, and good capacity of ship facilities and components [9]. There are about 50% of the total number of passenger ships in Indonesia are more than 20 years old and it is believed that ship renovation is urgently needed in an effort to provide better service to passengers [10].

So that the quality of the facilities and services of the Passenger Ship can be improved, then one thing that can be done is to design the interior of the public facilities and accommodation space of the passenger ship. This is inseparable from the lack of aesthetic aspects including the renewal and maintenance of the interior design of passenger ships in Indonesia. With the interior design of public facilities and accommodation space for passenger ships, it is hoped that public interest in using sea transportation can increase along with satisfaction with the interior design. The design is carried out on existing ships without changing the main dimensions, hull model, cargo capacity, and ship passenger capacity and focuses on the interior of the cafeteria, toilets, bathrooms, prayer rooms, and accommodation rooms.

II. METHOD

A. *Existing Condition Analysis*

The ship size reference to be used for the interior design of public facilities and accommodation spaces is as follows:

TABLE 1.
EXISTING SHIP'S MAIN DIMENSIONS

Ship Type	:	Ferry Ro-Ro
LOA	:	105.70 m
LBP	:	95 m
B	:	16.6 m
H	:	8.85 m
T	:	5.30 m
GT	:	5300
DWT	:	3150 tons

Analysis of the condition of the ship is carried out by field observations by the designer. After that, the condition of the ship is adjusted to the standard of passenger service according to the rules of the Minister of Transportation of the Republic of Indonesia Number PM 62 of 2019 concerning Minimum Service Standards for Ferries [11] as shown in **table 2**.

TABLE 2.
CHECKLIST FOR SHIP FACILITIES ACCORDING TO PASSENGER SERVICE STANDARDS

Room	Condition	Standard
Passenger Accommodation Room	All conditions are met	✓
Ship Public Space	There are no playgrounds for kids, photo booths, and disability-friendly facilities	-
Toilet	The toilet looks dull, many facilities are broken, and there are no facilities for people with disabilities	-
Prayer Room	All conditions are met	✓
Kitchen/Cafe	All conditions are met	✓

B. *Passenger Opinion Survey*

In this design, a survey of passenger opinions was collected on existing ships. This survey was conducted by distributing questionnaires in the form with the target participants being the passengers of the ship. The questionnaire collects opinions regarding the passenger's point of view in terms of the comfort and visual satisfaction of the ship and then is served into charts (see **figure 1**). The following are the results of the opinion survey:

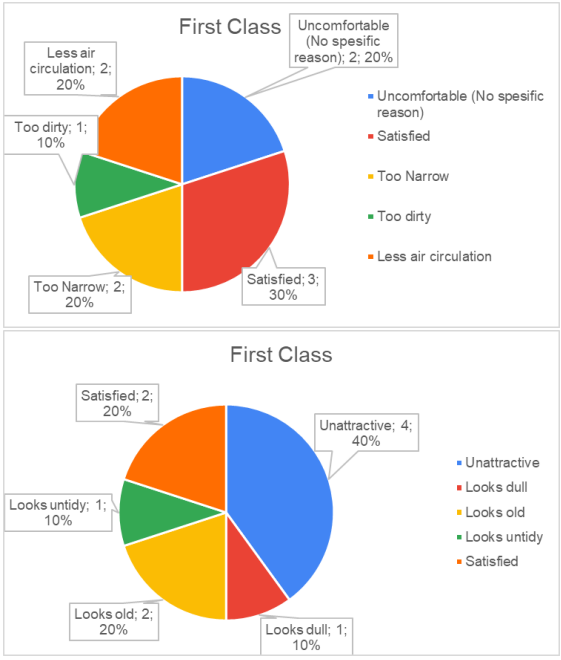


Figure. 1. Passengers' opinions on classrooms comfort

In the first question, passengers gave their opinion about their experience regarding comfort while resting and doing activities in the ship's accommodation room. In first-class rooms, 30% of respondents said they were quite comfortable with the existing room conditions. While the other 70% feel less comfortable. In the Second Classroom, 40% of respondents feel comfortable with the existing conditions while the other 60% feel less

comfortable with the room. The majority feel uncomfortable with this room giving reasons such as lack of air circulation, rooms that feel narrow, lack of room cleanliness, and other reasons that are not specified. While in the VIP room, 60% of respondents said they felt comfortable with the existing conditions while the remaining 40% said they were not comfortable with the condition of the room.

In the second question, passengers gave their opinion about their point of view on the condition of the interior design of the room in that class. In First Class Rooms, 20% of respondents are satisfied with the existing interior design while the other 80% feel that the design is unsatisfactory. In Second Class Rooms, 20% of respondents felt that the existing interior design was satisfactory while 80% felt that the design was unsatisfactory. In the VIP Room, 20% of respondents think that the interior of the room is quite satisfactory while the other 80% feel that the design is unsatisfactory. The reasons for respondents who chose the unsatisfactory design were the unattractive design, looked dull and old, and the arrangement was not neat.

In the third question, passengers gave their opinions about their experiences in public spaces and public facilities on board such as prayer rooms, toilets, and cafeterias. Answers were taken from 40 respondents. 13% of respondents admitted that the condition of the facilities on the ship was quite good, while 87% were dissatisfied. Passengers who feel dissatisfied give reasons, namely the ship is not kept clean, the ship looks less attractive, the facilities are inadequate, the space feels narrow, and the spatial arrangement is not neat.

In the fourth question, the respondent provides the expected new facilities. Answers were taken from 40 respondents. The most desirable facility is the existence of a free internet network provided by ships by 30% of respondents. Meanwhile, 25% expect a children's play area to relieve children's boredom while sailing. In addition, 20% of respondents expect an additional socket to be used as a place to charge passenger communication devices. The remaining 25% expect other things such as facilities for breastfeeding mothers and the elderly as well as entertainment facilities.

From the results of this survey, it can be concluded that in designing the interior of the ship, there needs to be a solution to the problems that passengers complain about, such as conditions that still feel narrow, the interior of the ship looking old and dull, and the design is less attractive.

C. Room Luminance Calculation

The calculation of the lighting that will be applied to the ship. Calculations are carried out using the zonal cavity method [12]. This calculation using the lumens method helps the designer to test and find the right characteristics of a room as shown in **figure 2**. To calculate the lamination ratio of a room, the formula will be:

$$RCR = x\ hrc\ x\ (\frac{L+W}{L\ x\ W}) \ldots\ldots\ldots\ldots (1)$$

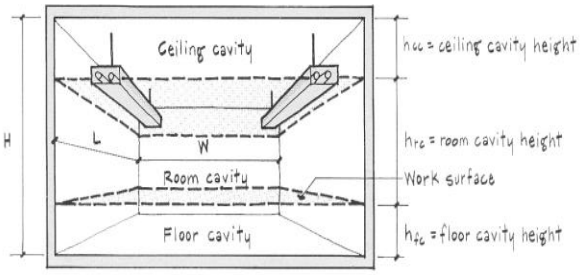


Figure. 2. The method of calculating the zonal cavity method

D. Design Visualization

After summarizing the aspects that make up the ship's interior design, visualization of the design can be carried out. Visualization is done by imitating a room in the form of a 3-dimensional image made with design software as shown in **figure 3**. Visualization is carried out in accordance with the dimensional planning and placement of the furniture in the general arrangement plan.

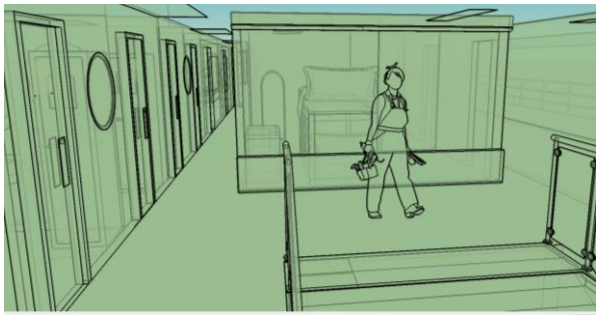


Figure. 3. 3D Design Visualization

III. RESULTS AND DISCUSSION

A. Design Concept

In designing the ship's interior, the design concept was chosen to be the design theme. This concept was chosen so that the ship's interior can have different characteristics from other ships. Conception is done by formulating what are the points that form the basis of the design. After that, it is concluded what design is appropriate to be applied to answer the factors that have been formulated. In this concept, three main points are taken, namely, the design object which is the interior of the ship, the user experience, and the company image of the applied design. For mapping the conclusions of the design factors, the following mind map is applied in.

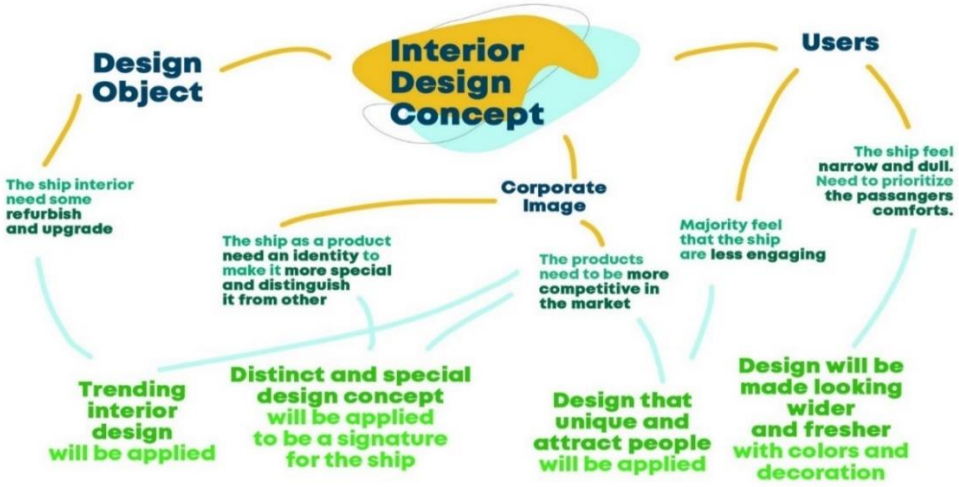


Figure. 4. Mind Map of the preparation of design concept factors

Based on the factors shown in **figure 4**, a suitable design can be chosen to be applied to the ship's interior design. Design themes that appear today are most popular in the 2020s when fashion and lifestyle are dominated by generation Z. Themes born by Gen Z are designed to be eye-catching and inspired by each individual's self-expression. The resulting designs make users want to take photos and capture their experiences, especially in an age where everyone is inspired to create content on the internet. An example of emerging trends is the Y2K theme. However, this theme is considered too juvenile (only suitable for the younger generation) because of the eccentric design and decoration and is very oriented to the hobbies of teenagers such as music, sports, graphic arts, and others. Therefore, a simpler and more attached design concept was born for all ages, namely the basic Avant design [13].

This concept uses bright or pastel coloring, creative patterns, and unique designs and furniture[14]. This concept is appropriate to be applied to the ship's interior to follow the existing trends according to the purpose of rejuvenation, become a characteristic that creates a special identity for the ship, and attract attention through a photogenic design while still increasing passenger comfort when using the ship's services.

B. New Interior Layout Planning

In the design, the ship layout is rearranged to meet the satisfaction of the customer. Planning is carried out on the deck layout plan of the ship (See **figure 5**) including VIP room, 1st classroom, 2nd classroom, corridor, toilet, *musholla*/ prayer room, and cafe. These rooms are redesigned from the original layout plan of the existing ship.

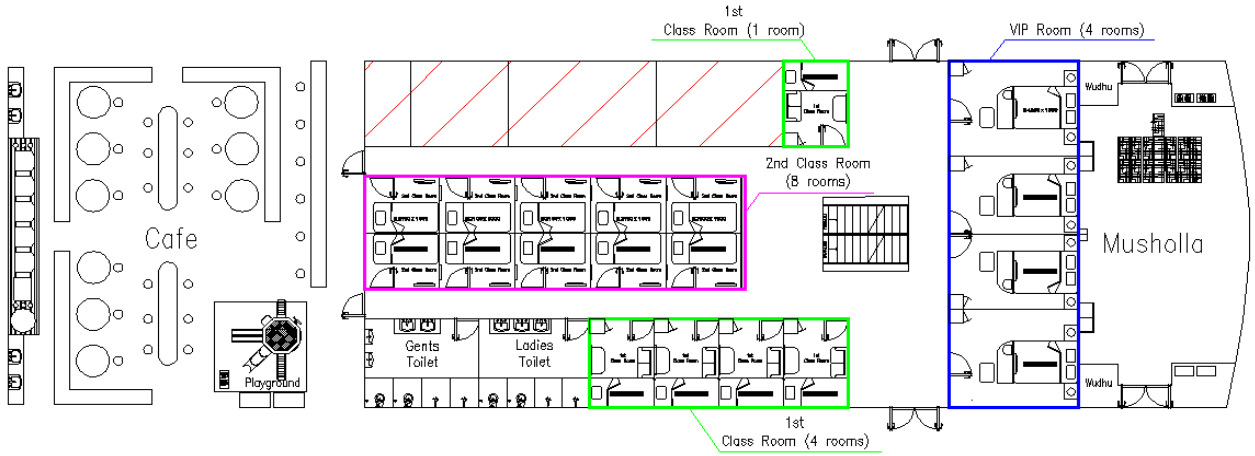


Figure. 5. Ship's new layout

C. Room Luminance Calculation

The lighting calculation is carried out to be applied to the ship. Calculations are carried out using the zonal cavity method as shown in **Tables 3 and 4**. Calculation with this method helps the designer to find out the best characteristic of lighting that fit the room's visibility and comfort for the passengers.

TABLE 3.
ROOM RATIO CALCULATION

No.	Lamp Variant	Illumination Standard (Lux)	Room Dimension (m)				RCR	Cu
			Length	Width	Height	Area		
1	Corridor (Main Entry)	150	6,63	11,7	2,3	77,57	2,60	0,65
2	Corridor (Room Tunnel)	150	13,7	1	2,3	13,70	12,34	0,30
3	First Class Room (Normal Condition)	150	2	3	2,3	6,00	9,58	0,65
4	First Class Room (Sleep Condition)	30	2	3	2,3	6,00	9,58	0,61
5	First Class Room (Table Lamp)	500	0,5	0,86	2,3	0,43	23,72	0,64
6	Second Class Room (Normal Condition)	150	2,45	2	2,3	4,90	10,44	0,64
7	Second Class Room (Sleep Condition)	30	2,45	2	2,3	4,90	10,44	0,60
9	VIP Room (Normal Condition)	150	4,2	2,5	2,3	10,50	7,34	0,72
10	VIP Room (Sleep Condition)	30	4,2	2,5	2,3	10,50	2,65	0,45
11	VIP Room (Table Lamp)	500	0,8	0,5	1,88	0,40	10,73	0,64
12	Toilet (Main area)	150	3,6	3	2,3	10,80	6,72	0,42
13	Toilet (Per chamber)	200	0,93	1	2,3	0,93	23,87	0,64
14	Prayer room (Praying area)	150	4,79	11,7	2,3	56,04	3,24	0,61
15	Prayer room (Wudhu area)	150	1,29	0,74	2,3	0,95	23,39	0,64
16	Prayer room (Wardrobe and shoe rack)	150	1,29	0,74	2,3	0,95	23,39	0,64
17	Cafe	300	10,36	11,7	2,3	121,21	1,27	0,63

TABLE 4.
LIGHT FLUX CALCULATION FOR EACH ROOM

No.	Lamp Variant	Minimum Flux Needed (Lumen)	Lamp's Flux (Lumen)	Lamp Amount		Total Lumen (Counted with Zonal Cavity Method)
				Planning	Usage	
1	Corridor (Main Entry)	12568,42	3200	4	on	12800
2	Corridor (Room Tunnel)	4795,00	800	6	on	4800
3	First Class Room (Normal Condition)	965,52	500	2	on	1000
4	First Class Room (Sleep Condition)	205,71	250	1	off	250
5	First Class Room (Table Lamp)	235,16	250	1	off	250
6	Second Class Room (Normal Condition)	803,91	1000	1	on	1000
7	Second Class Room (Sleep Condition)	171,50	250	1	off	250
9	VIP Room (Normal Condition)	1531,55	800	2	on	1600
10	VIP Room (Sleep Condition)	492,02	500	1	off	500
11	VIP Room (Table Lamp)	218,75	250	1	off	250
12	Toilet (Main area)	2692,88	3200	1	on	3200
13	Toilet (Per chamber)	203,44	250	1	on	250
14	Prayer room (Praying area)	9713,58	3200	4	on	12800
15	Prayer room (Wudhu area)	156,61	250	1	on	250
16	Prayer room (Wardrobe and shoe rack)	156,61	250	1	on	250
17	Cafe	40237,72	3200	13	on	41600

D. Statutory

Safety devices based on the statutory regulations are used around the interior of the ship. Installation of sprinklers as local fire extinguishers and smoke detectors connected to fire alarms is required in passenger rooms and public facilities such as prayer rooms (see **Figures 6 and 7**).

Figure. 6. Smoke detector and Sprinkle on the ceiling of the room as well as an emergency life jacket box for passenger safety in an emergency.

Figure. 7. Installation of Smoke Detector and Sprinkle at ship's public facility

E. Final Design

After summarizing the aspects that make up the ship's interior design, visualization of the design can be carried out. Visualization is done by imitating a room in the form of a 3-dimensional image made with design software. The buildings and Furniture that are used in this design are based on Safety of Life at Sea 1974 (SOLAS 1974) Chapter II-2 about the material, Thus the material used for the designs are marine standards. The visualization design result is as follows:

The main corridor of the passenger room is the first area that passengers access when boarding the 6 decks of the ship. The corridor is the main access to passenger rooms (First Class, Second Class, and VIP), toilets, and passenger bathrooms, as well as access to exit from the passenger accommodation room. The basic color of this room uses a beige color on the walls and ceiling combined with a vinyl wood floor pattern (see **figure 8**). The basic colors are combined with the colors produced from the color of the room doors and painting decorations and ornamental plants. The paintings used are modern art, namely geometric murals made with graphic designs. In this corridor, a large mirror is also used with the installation of ornamental plants and LED strip lights as decoration. The details are shown in **table 5.**

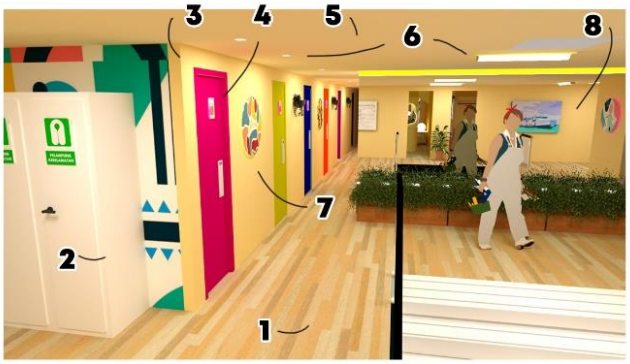


Figure. 8. Main Details of Passenger Room Corridor

TABLE 5.
PASSENGER CORRIDOR DETAILS

No	Name	Information
1.	Floor	Vinyl Material
2.	Life vest Box	Metal Material
3.	Wall	GRC Panel Material
4.	Door	Steel Plate Material
5.	Ceiling	PVC Panel Material
6.	Headlight	Single LED Material
7.	Decoration	Canvas Material
8.	Wall Mirror	Glass Material

The first classroom type is the first level accommodation class on the ship with facilities of one single bed and one sofa for passengers to rest as shown in **figure 9**. The room is for 1 person but can be used to accommodate 2 people. The room is designed to look more photogenic to the user. The color of the room uses bright colors supported by the use of geometric murals on the walls. The rooms are decorated with various decorations such as mirrors with LED strip lights and word lamp decorations (see **figure 10**). The details are shown in **table 6**.

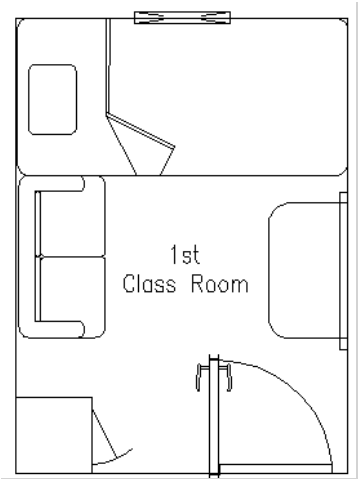


Figure. 9. First Class Room Layout

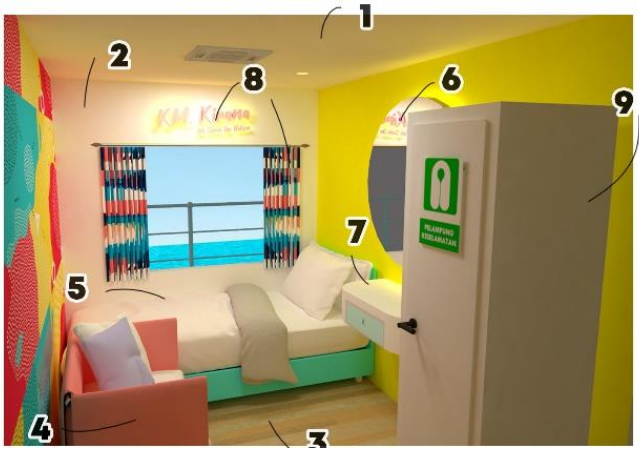


Figure. 10. First Class Room Design

TABLE 6.
FIRST-CLASS ROOM DETAILS

No	Name	Information
1.	Ceiling	PVC Panel Material
2.	Wall	GRC Panel Material
3.	Floor	Vinyl Material
4.	Sofa	Leather Material
5.	Mattress	Using Bedding
6.	Mirror	Glass Material
7.	Table	HPL Multiplex Materials
8.	Decoration	LED Strip Material
9.	Life Vest Box	Metal Material

The second classroom type is the second-level accommodation class on the ship with mattress facilities for passengers to rest as shown in **figure 11**. The room can accommodate up to 2 people. Just like the first classrooms, the room designs are designed to look more photogenic to users. The color of the room uses bright colors supported by the use of geometric murals on the walls. The rooms are decorated with various decorations such as mirrors with LED strip lights. Class II rooms also have televisions for passenger entertainment while resting on board (see **figure 12. a-b**). The details are shown in **table 7**.

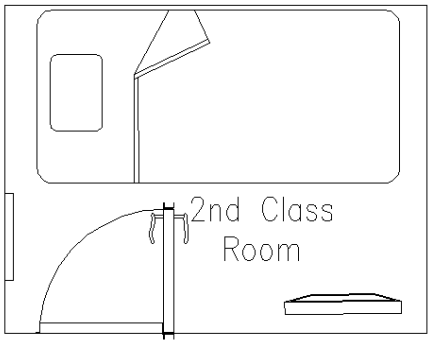
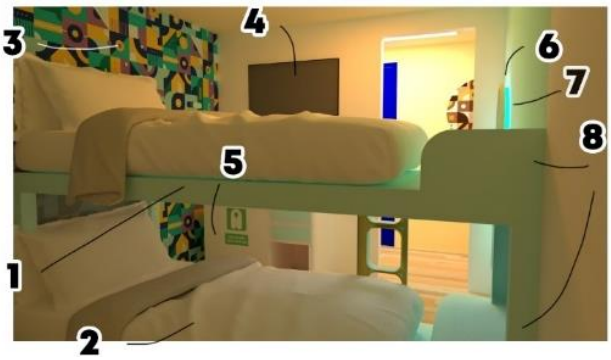
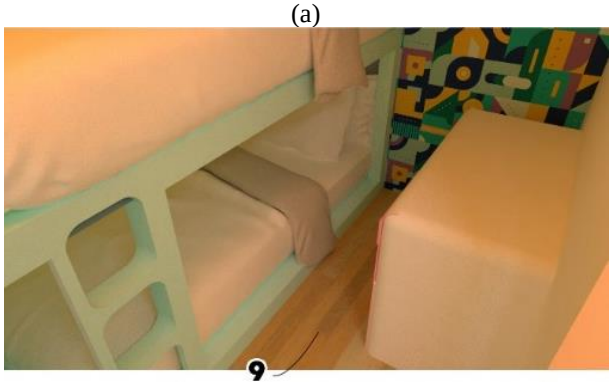


Figure. 11. Second Class Room Layout



(a)



(b)

Figure. 12. (a-b). Second Class Room Design

TABLE 7.
SECOND CLASSROOM DETAILS

No	Name	Information
1.	Bunk Bed	HPL Multiplex Materials
2.	Mattress	Using Bedding
3.	Wall	GRC Panel Material
4.	Television 21”	LED TV
5.	Desk-Closet	HPL Multiplex Materials
6.	Mirror	Glass Material
7.	Decoration Lamp	LED Strip Material
8.	Item Locker	Part of the Bunk Bed
9.	Floor	Vinyl

VIP room type is the third level accommodation class on the ship with 1 double bed facility for 2 people as shown in **figure 13**. The room is for 2 people but can accommodate up to 4 passengers. The rooms are designed to look more comfortable when passengers are resting or doing activities while in the room. The color of room uses a combination of bright geometric colors on the walls and in an authentic graphic design specifically for ships. The rooms are decorated with various decorations such as mirrors with LED strip lights and painting art. The room also has a work desk for passengers to use and a washbasin for passengers to clean up on the boat (see **figure 14. a-c**). The details are shown in **table 8**.

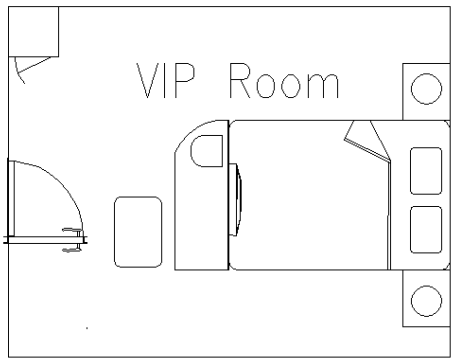
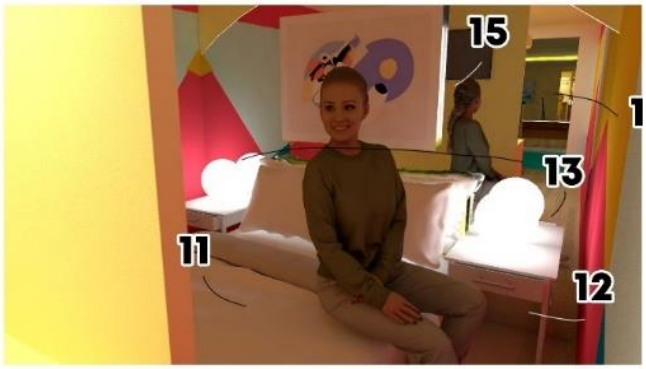


Figure. 13. VIP Room Layout

(a)



(b)

(c)

Figure. 14. (a-c). VIP Room design

TABLE 8.
VIP ROOM DETAILS

No	Name	Information
1.	Ceiling	PVC Panel Material
2.	Wall	GRC Panel Material
3.	Floor	Vinyl Material
4.	Life Vest Box	Metal Material
5.	Washbasin	Ceramic Material
6.	Mirror	Glass Material
7.	Chair	Leather Material
8.	Desk-Blockboard	HPL Multiplex Materials
9.	*Hangar*	Aluminum Material
10.	Item Baggage	HPL Multiplex Materials
11.	Mattress	Using bedding
12.	Desk-Drawer	HPL Multiplex Materials
13.	Night lamp	Single LED Material
14.	Wall Mirror	glass material
15.	Decoration	Canvas Material
16.	Television	21" LED TV

The toilet on deck 6 is a toilet used by passengers resting in the ship's passenger accommodation room. The main facilities in this toilet are a water closet, bathroom, and washbasin as shown in **figure 15**. The toilet design uses bright colors and geometric mural decorations according to other room themes and concepts. The coloring of male and female toilets is distinguished so that there is uniqueness. There is also a mirror in the room and a toilet sink decorated with LED Strip lights to create a photogenic feel to the room (see **figure 16. a-d)**. The details are shown in **table 9**.

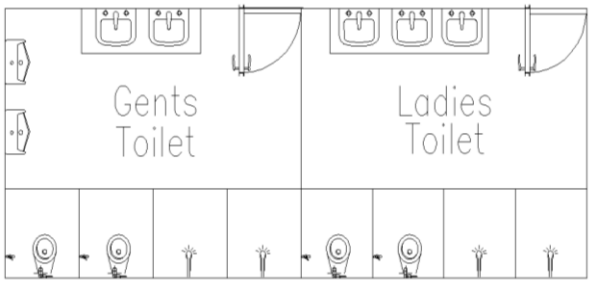


Figure. 15. Toilet Layout

(a)

(b)

(c)

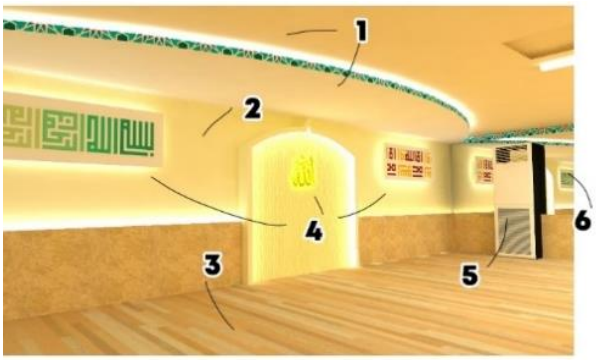
(d)

Figure. 16. (a-d). Ship's Toilet

TABLE 9.
TOILET ROOM DETAILS

No	Name	Information
1.	Headlight	Single LED Material
2.	Door	Steel Material
3.	*Hand dryer*	Details according to product
4.	Ceiling	PVC Panel Material
5.	Wall	PVC Panel Material
6.	Mirror	Glass Material
7.	Washbasin	Mirror Material
8.	Tap	Material Aluminum Steel
9.	Floor	Epoxy Material
10.	*Water Closet*	Ceramic Material
11.	Shower	Material Aluminum Steel
12.	Urinals	Ceramic material, specifically for gents toilets

The prayer room is used by all passengers on board. The design is inspired by the interior of some famous modern mosques. The prayer room is beautified with modern decorations with Islamic nuances and the installation of modern Kufi calligraphy. The room is also perfected with the installation of mirrors and LED Strip Lights. The design of the locker and the wudhu area matches the design of the prayer room (see **figure 17. a-c**). The details are shown in **table 10**.



(a)

(b-c)

Figure 17 (a-c). Prayer Room

TABLE 10.
DETAILS OF THE PRAYER ROOM

No	Name	Information
1.	Ceiling	PVC Panel Material
2.	Wall	GRC Panel Material
3.	Floor	Vinyl Material
4.	Decoration	Canvas material and LED Strip Lights
5.	AC	According to product details
6.	Mirror	Glass Material
7.	Locker	metal material
8.	Shoe Rack	Steel frame material and Multiplex HPL
9.	Wudhu Area	PVC Panel Material
10.	Tap Water	Stainless Steel
11.	Decoration	Coral
12.	Doormats	According to product

The cafe is designed to match the design of other rooms, namely with bright coloring supported by geometric murals to beautify the room. The seat arrangement is designed to be more flexible to accommodate more customers as shown in **figure 18-19**. Passengers can also choose to sit at the bar. There is also a buffet for passengers to take food in a buffet. Passengers can also choose to buy food from the vendors in the cafeteria. The details are shown in **table 11**.

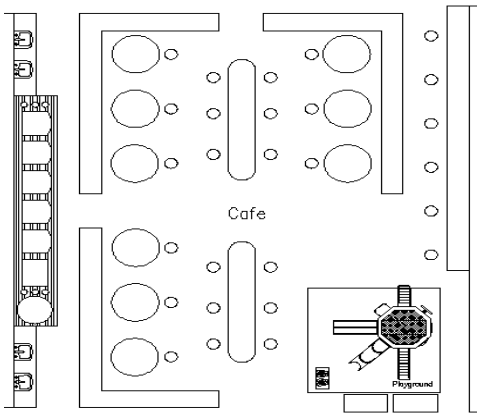
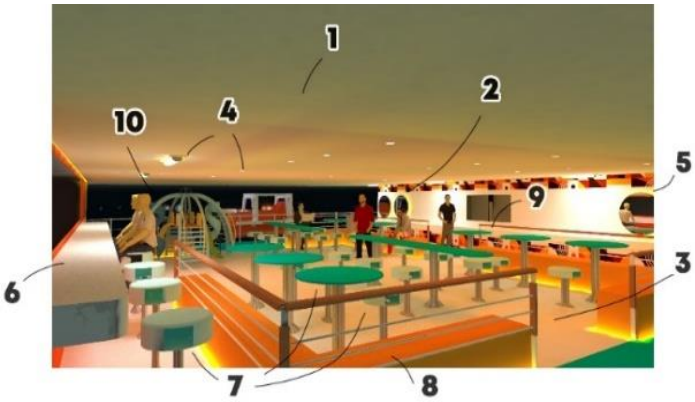


Figure. 18. Cafe Layout



(a)

(b)

Figure. 19. (a-b). Cafe on the ship

TABLE 11.
CAFE DETAILS

No	Name	Information
1.	Ceiling	PVC Panel Material
2.	Wall	GRC Panel Material
3.	Floor	Vinyl Material
4.	Lamp	Single LED Material
5.	Mirror	glass material
6.	Bar table	HPL Multiplex Materials
7.	Chair and table (single)	Leather material, steel legs
8.	Lounger	HPL Multiplex Materials
9.	*Buffet*	HPL Multiplex Materials
10.	Playground	According to product
11.	Washbasin	Ceramic Material

F. Additional Facilities

In the interior design of the ship, adjustments were made to the design that was applied in accordance with the survey results which were intended to increase passenger comfort while on board such as electric sockets on café chairs and bar tables (see **figure 20**-**21**). In addition, there is also a playground for children to spend their time having fun on the ship as shown in **figure 22**.

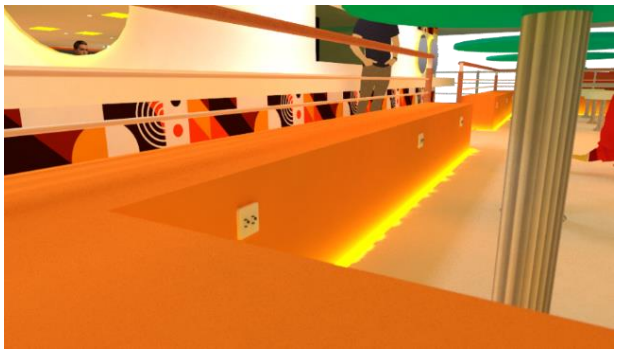


Figure. 20. Electric socket on Cafe chairs

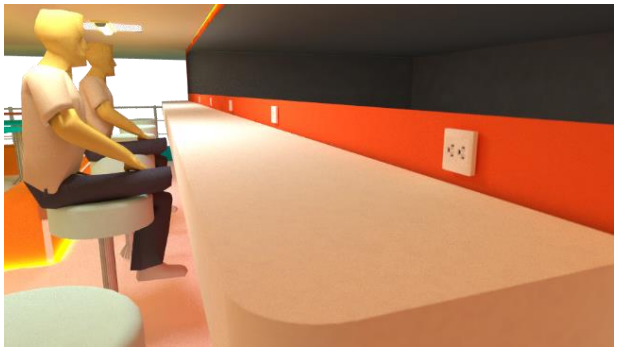


Figure. 21. Electric socket on the Bar table

Figure. 22. Playground

G. New Concept Opinion Survey

In this design, a survey of passenger opinions was carried out on the new concept of the ship's interior. This survey was conducted by randomly distributing questionnaires in the form of online and offline forms. The questionnaire collects opinions regarding the concept of the ship's interior which looks better visually then converted into charts as shown in **figure 23**.

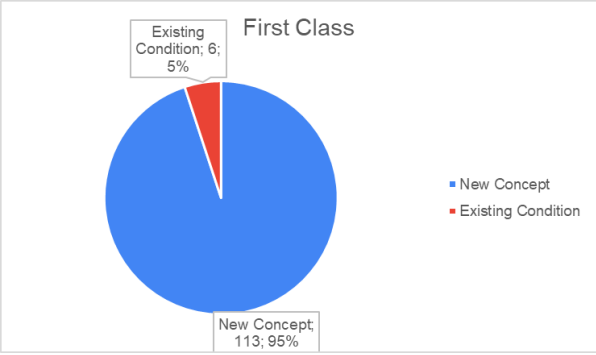


Figure 23. Comparison graph of respondents' opinions

The first question compared the existing condition and the new concept of the First Room. 95% of respondents chose the new concept over the existing condition. The reasons presented are the rooms that look brighter, the concept is modern, and the new looks are more attractive. Meanwhile, those who chose existing conditions gave reasons because they were afraid that the new ship concept would make ship ticket prices more expensive. In addition, there are also those who give reasons that the rooms are too luxurious to be said to be class I

In the second question, compare the existing conditions and the new concept of the Second Class Room. 97% of respondents choose a new concept over existing conditions. The reason given is that the rooms look brighter and the new ones look more attractive. Meanwhile, those who chose the existing condition gave the same reason as before, namely they were afraid that ticket prices would increase because of the new room concept. In the third question, the existing conditions and the new concept of VIP rooms are compared.

87% of respondents choose a new concept over existing conditions. The reason given is a modern, luxurious, innovative concept, and a new, more attractive look. Meanwhile, those who chose the existing condition gave reasons for the color of the room and the arrangement of the existing conditions which according to the respondent looked simpler.

In the fourth question, compare the existing conditions and the new concept of the passenger room corridor. 90% of respondents choose a new concept over existing conditions. The reason given is the new nuances that also characterize the ship. Another reason given is that the colors are brighter, look modern, and look more attractive. Another 10% think that the existing condition is still better because according to the respondent, the corridor is not significant to be renewed. In addition, there are also those who think that the corridor that looks old can be the main attraction for the ship.

In the fifth question, compare the existing conditions and the concept of the passenger toilet. 94% of respondents said they are more interested in new concepts. The reasons given are that the room looks brighter, the facilities are more adequate, looks more modern and attractive. Meanwhile, 6% of respondents who prefer the existing condition reasoned that the toilet design would make people use the facilities for too long and create queues as well as the opinion that the existing toilets were arranged more neatly.

In the sixth question, the existing conditions and the new concept of the prayer room are compared. 99% of respondents chose the new-looking concept of the prayer room. The reasons for the respondent's opinions are the redesign that is brighter, and more elegant, and the opinion that the design helps the worship activities.

The seventh question compared the existing conditions and the new concept of the cafeteria. 89% of respondents think that the new concept is more interesting than the existing condition. The reason given is that it looks more attractive and is more child-friendly with a play area. 11% who are more interested in existing conditions think that these conditions are still considered good and satisfactory.

IV. CONCLUSIONS

Based on the analysis carried out by the designer with field observations, literature studies, and surveys, the passenger comfort factor on the ship can be based on the standards set by the Regulation of the Minister of Transportation of the Republic of Indonesia Number 62 of 2019 concerning Minimum Service Standards for Crossing. Based on the results of a survey of ship passengers' opinions, it is known that passenger comfort can be improved, especially in the factors of cleanliness, room arrangement, air circulation, rejuvenation of the room, as well as interior visuals that are made more attractive. New facilities can also be added to the ship such as a children's playground and entertainment facilities.

In addition, It is necessary to have an interior design that is popular with the public, has its own characteristics, attracts public attention, and is simple and not shabby design. The design concept that fits the needs above is the Avant basic concept because this design theme is a translation of current design trends and presents its characteristics for ships. Interior rearrangements and furniture adjustments were made according to the activities on the ship and adjusted to the passenger comfort factor according to marine standards.

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