



Development of child-friendly interior design at Tumbuh Kembang Daycare, Sinduharjo, Yogyakarta

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ABSTRACT

This study aims to design the interior of a child-friendly daycare by considering functional, comfort, safety and aesthetic aspects. Research and Development (R&D) is the method used in this study. The results of this study are the development of a child-friendly interior at the Sinduharjo Yogyakarta Growth and Development Daycare, which produces 2-dimensional and 3-dimensional images and presentation videos. The study provides the following results: 1) Child-friendly interior design with natural nuance literacy and considering safety, comfort, functional and aesthetic aspects, 2) Optimization of the function of each existing space by utilising space and converting space, 3) Application of furniture that is safe for children and multifunctional, 4) Creation of branding for daycare by creating a cheerful and child-friendly atmosphere, 5) Processing of elements that form a space such as the floor, walls and ceiling to be more child-friendly and in accordance with the natural literacy atmosphere. Overall, the design considers essential aspects of interior design, important aspects of children's space, use of colour, spatial layout, criteria for facilities and infrastructure, space requirements, and child therapy rooms.

Keywords: *interior, daycare, child friendly.*

ABSTRAK

Penelitian ini bertujuan untuk menyusun perancangan interior pada daycare tumbuh kembang dengan konsep ramah anak dengan mempertimbangkan aspek fungsional, kenyamanan, keamanan dan keindahan. Penelitian dan Pengembangan atau R&D (Research and Development) adalah metode yang digunakan dalam penelitian ini. Hasil penelitian ini berupa pengembangan interior ramah anak di Daycare Tumbuh Kembang Sinduharjo Yogyakarta yang menghasilkan gambar 2 Dimensi, 3 Dimensi, dan video presentasi. Penelitian memberikan hasil: 1) Perancangan interior ramah anak dengan literasi nuansa alam serta mempertimbangkan aspek keamanan, kenyamanan, fungsional dan keindahan, 2) Optimalisasi fungsi setiap ruang yang ada dengan memanfaatkan ruang kosong dan melakukan alih fungsi ruang, 3) Penerapan furniture yang aman untuk anak dan multifungsi, 4) Pembuatan branding tempat penitipan anak dengan membuat suasana yang ceria dan ramah anak, 5) Pengolahan elemen pembentuk ruang seperti pada lantai, dinding dan plafond agar lebih ramah anak serta sesuai dengan suasana literasi alam. Secara keseluruhan perancangan mempertimbangkan aspek penting desain interior, pertimbangan aspek penting ruang anak, penggunaan warna, tata ruang, kriteria sarana-prasarana, persyaratan ruang, dan ruang terapi anak.

Kata Kunci: *interior, daycare, ramah anak.*

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INTRODUCTION

Childcare practices today are diverse. Parents with more time available often choose to care for their children themselves. At the same time, those with demanding schedules may opt to entrust their children to relatives or childcare centres to ensure the child remains under adult supervision. This situation strengthens the argument that daycare centres are crucial facilities supporting children's growth and development. In such settings, children engage in interactions with caregivers, playing, learning, and participating in daily activities. A study on the rational reasons parents choose daycare for their children has shown that parents wish to support their family's economy while ensuring their children receive optimal care (Reski et al., 2022: 4).

Since 2016, the Ministry of Women's Empowerment and Child Protection (Kemen PPPA) has received a mandate regarding child care, along with special directions from the President following a meeting with the Indonesian Confederation of Labor on April 26, 2019, to coordinate the development of child-friendly daycare centers for working parents. Furthermore, it is acknowledged that many daycare centres still do not meet children's rights and remain unstandardised. According to Susenas data (2020) cited by the Deputy for Child Rights Fulfillment (2021), many toddlers are still being raised under unsuitable caregiving patterns. This data reveals that Indonesia has an average rate of 3.64%, with 15 out of 24 provinces exhibiting caregiving patterns below the national average.

There is a significant issue with daycare centres, as noted by the Indonesian Child Protection Commission (KPAI, 2015), which states that 75% of Indonesian families entrust their children to others, either temporarily or permanently. Daycare centres play a crucial role as child-rearing institutions, as these spaces are vital for children's growth during their golden years—the most formative period of development that cannot be replicated. Therefore, the availability of high-quality daycare services is essential for providing the best care for children.

Tumbuh Kembang Sinduharjo is one of the daycare centres in Yogyakarta. This daycare complies with the regulations outlined in the Ministry of Education and Culture's Decree No. 84 of 2014 on the Establishment of Early Childhood Education Units. As with most daycare centres, this facility serves as a group childcare service during working hours, offering care for children outside their homes for several hours a day. For parents who entrust their children to daycare, it serves as a space to maximise their child's development during the golden age. The golden age is the critical stage where children experience rapid growth across multiple domains. Thus, it is no surprise that daycare has become the preferred choice for parents facing challenges in child-rearing while working or managing other responsibilities. Given the duration of care and the children's developmental needs, creating a child-friendly space is essential to ensure a safe, comfortable, and healthy environment.

Recent studies on early childhood cognitive development emphasise the importance of providing a stimulating educational environment. Experts argue that a safe childcare space offers various learning opportunities that enhance early neurological connections, trigger emotional interest, and provide pathways for learning. An optimal learning environment directly motivates children to engage in collaborative learning processes and helps teachers facilitate the learning experience (Crosbie, 2001). Therefore, interior development is necessary for every educational facility, including daycare centres, to ensure that learning activities and all indoor interactions can take place effectively.

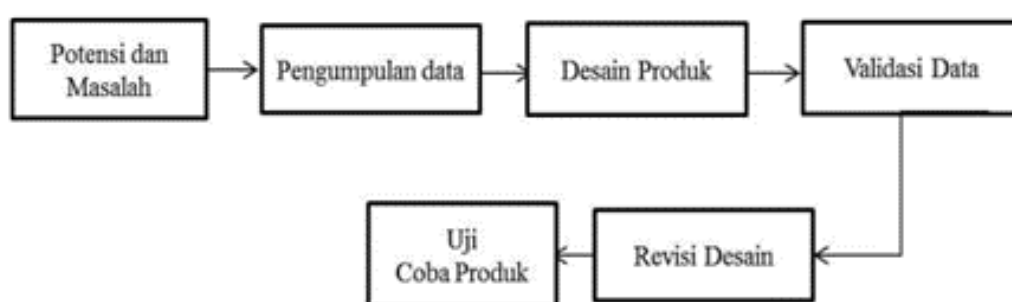
Daycare programs must use permanent buildings that are easily accessible, secure, and comfortable (Directorate General of Early Childhood Education, 2015: 44). Observing the current facilities at the Sinduharjo branch daycare, it is clear that the space is adequate. The daycare is housed in a spacious two-story house measuring approximately 13x13 meters. The main activity area is located on the ground floor, where one part of the room is semi-outdoor. The space also includes several other rooms, such as bedrooms, therapy rooms, a kitchen, and a bathroom. Ideally, however, daycare centres should also feature rooms such as a multipurpose room, an office, a kitchen, children's and adult bathrooms, a handwashing area, a health room, and a storage room (Directorate General of Early Childhood Education, 2015: 46).

A redesign is necessary to provide branding and comfort that aligns with child-friendly daycare criteria and supports the daycare's vision and mission, creating a play environment that fosters literacy. Thus, the author has incorporated the concept of literacy in the design, mainly focusing on environmental literacy, in line with the Tumbuh Kembang Daycare logo to ensure the branding remains consistent.

METHOD

Research Type

The research and development (R&D) model is employed in this study. R&D can be defined as a systematic and deliberate research method aimed at identifying, formulating, improving, developing, producing, and testing the effectiveness of specific products, models, strategies, services, or procedures to create superior, novel, effective, efficient, productive, and meaningful outcomes (Putra, 2013: 67). This research involves four main stages: research, design, production, and testing.



Picture 1. Steps for Using the R&D Method
(Source: Author)

Potential and Problems

Potential problems are obtained from preliminary studies, such as:

1) Literature Review

The literature review involves identifying and studying phenomena related to the research object through sources relevant to the research and development of child-friendly interiors at the Tumbuh Kembang Sinduharjo Daycare in Yogyakarta. The literature study focuses on interior elements of daycare centres to ensure alignment with governmental regulations and child-friendly space standards. Key topics analysed in the literature review include:

- a) Definition of Childcare Centers
- b) Considerations for Children's Activity Spaces
- c) Child-Friendly Facilities and Infrastructure
- d) Requirements for Child-Friendly Spaces
- e) Educational Play Equipment (EPE)
- f) Standard Measurements for Children's Furniture

2) Field Study

The field study involves direct observation of the research phenomenon, including the building, room layout, spatial arrangement, and activities conducted at the Tumbuh Kembang Sinduharjo Daycare. Interviews are conducted with the daycare manager and caregivers to gather information about activities, users' opinions on the daycare's interior, challenges faced, and the desired atmosphere for the daycare's spaces.

Data Collection

Data collection includes observations and interviews conducted with the daycare's management and caregivers. It also encompasses documents and photographic documentation of the spaces. These documents serve as references for developing the interior design at Tumbuh Kembang Sinduharjo Daycare.

Product Design

After gathering sufficient data, the design process can proceed. The steps in developing the interior design for Tumbuh Kembang Sinduharjo Daycare include:

1. Design Concept Development

The design concept is formulated based on observational data to determine the appropriate furniture, colours, zoning, and other elements (Wulandari *et al*, 2022) necessary for a child-friendly space.

2. Design Drafting

Design drafting is carried out both manually and digitally, producing 2D and 3D representations. The 2D working drawings, such as floor plans, ceiling layouts, sectional drawings, and layouts, are created using AutoCAD 2007 and 2015. For 3D modelling, SketchUp 2020 is used, and rendering is performed with Enscape to create realistic visualisations.

3. Finishing Process

The final step involves finishing the design using video and photo editing software. Tools such as InShot on Android and Adobe Photoshop are used to adjust contrast and colours in the rendered images.

Design Validation

Design validation is conducted by an interior design expert and a practitioner or manager of Tumbuh Kembang Sinduharjo Daycare, who provide feedback and evaluations on the developed design.

1. The design is assessed by Mrs Eni Puji Astuti, S.Sn., M.Sn., a lecturer in Fine Arts Education, Faculty of Language, Arts, and Culture, *Universitas Negeri Yogyakarta* (UNY), focusing on aspects such as theme, principles, and alignment with interior design knowledge.
2. Validation from the daycare manager, Mrs. Dyah Rufiandri, S.Pi., S.Pd., evaluates the practicality and relevance of the design in facilitating children and other occupants in the daycare.

Design Revision

Revisions are made based on feedback and suggestions from the interior design expert and practitioner to improve and refine the daycare's interior design.

Design Trial

The design trial is conducted after completing the revisions. The trial evaluates the feasibility of the developed interior design for Tumbuh Kembang Sinduharjo Daycare. This trial process is integrated with the design validation phase.

RESULT AND DISCUSSION

Design Concept

The interior design concept for the Tumbuh Kembang Sinduharjo daycare emphasises a child-friendly environment while incorporating the daycare's branding mission and vision statements.

a) Spatial Atmosphere

The daycare's spatial atmosphere adopts a child-friendly concept, wrapped in a cheerful and natural ambience. The materials selected for furniture and spatial elements reflect this natural theme, ensuring they are safe for children while maintaining a vibrant and nature-inspired atmosphere. The child-friendly, nature-themed concept aligns with the daycare's branding and mission to foster literacy skills. Consistent with the logo, which features natural elements, and the affectionate term "beetle troops" used for the children, the design incorporates an insect-themed nature concept to enhance the child-friendly, nature-literacy branding. The daycare's existing lighting and ventilation systems are adequate but will be slightly adjusted to enhance child-friendliness by adding skylights and improving air circulation.

b) Spatial Development

The spatial development of the Tumbuh Kembang Sinduharjo daycare is based on the author's analysis, which includes spatial elements, required facilities, room conditions, spatial needs, user

activities and facilities, workflow circulation, specifications for furniture, toys, infrastructure, and room operations. Adjustments were made to certain spatial elements in several rooms, such as replacing or removing doors and windows, to better align with the proposed design enhancements.

Table 1. Room Repurposing Design

No	Original Room	Room Repurposing Design	Room Size
1	1 Activity room joins registration and locker rooms	1 Registration and locker room	Square 4,3 x 4,3m
2	Terrace	1 Activity Room	Trapezoid 6,2x8x5m
3	Children's Bedroom	Waiting Room	5 x 2 meter
4	Baby Bedroom	Children's Bedroom	5 x 4 meter
5	Adult Bathroom	Baby Bedroom	3 x 4 meter
6	Children's Bathroom	Adult Bathroom	Trapezoid 2x1,1x1,5 m
7	Therapy Room	Children's Bathroom	Trapezoid 3,4x2,3x3 m
8	Garage	Consultation Room	3x2 meter
9	Semi outdoor land	Worship Room	3x3 meter
10	Kitchen	Therapy Room	4,3 x 5,7 meter
		Semi outdoor playground	4,3 x 3,3 meter
		Kitchen	Trapezoid 6,3,5x2,5 m

Several interior elements, such as windows, doors, and ventilation systems in specific rooms, were modified or removed. For example, all doors were redesigned with arched tops. Other changes to room elements include:

- 1) Outdoor Waiting Area
Previously an open space, it was converted into a semi-indoor area with the addition of railings and an archway in front of the terrace.
- 2) Locker and Registration Room
The wooden doors and windows were replaced with sliding doors and glass windows, allowing visibility from the outside to the interior.
- 3) Children's Sleeping Room
The standard windows were replaced with sliding glass windows. These were complemented with floral-patterned railings and Kris Venetian blinds (PVC roller blinds) to prevent disturbance when children sleep.
- 4) Baby Sleeping Room
The windows were converted to sliding glass, similar to the children's sleeping room. However, the baby sleeping room lacks railings and is equipped with fabric curtains instead.
- 5) Consultation Room
Previously used as a therapy room, it was redesigned to serve as a consultation and prayer room. A partition made of blockboard with PVC finishing was added to divide the space. The windows were replaced with sliding glass windows featuring floral-patterned railings and Kris Venetian blinds.
- 6) Therapy Room
The therapy room, which was originally a garage with a rolling door and open walls connected to a semi-outdoor space, was enclosed. Three vents were added, along with an interior door that connects to the semi-outdoor garden, and a beetle-themed glass window was installed.
- 7) Semi-Outdoor Garden

The previously uncovered space that allowed direct sunlight into the activity area was transformed into a semi-outdoor garden. It now features skylights and ample, high ventilation.

8) Kitchen

The original kitchen had partition walls, windows, and an exterior door. These were removed in the redesign to create a more spacious and organised area.

c) Activity and Facility Analysis

Activities in the daycare require facilities that can effectively support caregiving for the children and ensure their safety and comfort.

d) Layout (Zoning)

The division of areas, or zoning, in the Tumbuh Kembang Sinduharjo daycare, includes several key sections as follows:



Picture 2. Daycare Zoning Area

Information :

Terrace Area	: Square shape with uneven sides, an area for waiting and storing shoes/helmets.
Locker Area	: Location for placing goods and waiting in line.
Activity Area	: Location where daycare activities take place.
Children's Bedroom	: The location where the child rests and sleeps.
Baby Bedroom	: Baby sleeping location.
Semi Garden Outdoor Area	: to play is near the activity area
Children's Bathroom	: children's bathing location, children's place, and tub.
Adult Bathroom	: Locations for adult bathing and defecation
Consultation Area	: The consultation area is adjacent to the worship area.
Worshipping Area	: The prayer location is adjacent to the consultation area.
Therapy Area	: Location where children do play therapy.
Kitchen	: Location for cooking, eating, and drinking.
Circulation Area	: A place for wind circulation, walking and a place to put a baby's high chair.
Playground Area (Outdoor)	: The location of the children playing is in the front yard.

Parking Area : The location where the vehicle is parked.

e) Circulation Activity/Flow

The implementation of activity flow or circulation within the daycare is designed to ensure smooth and efficient movement, promoting safety and comfort for both children and caregivers. The placement of furniture is tailored to its function, ensuring that closely related facilities are interconnected, thus accommodating spatial needs and creating a spacious and uncluttered environment.

f) Spatial Element Development

The development of spatial elements in the interior design of the Tumbuh Kembang Sinduharjo Daycare consists of three main components: floor treatment, wall treatment, and ceiling treatment. The details of these elements in each room are as follows:

1) Floor Treatment

The floor is a fundamental element in any room, serving both a functional purpose and an aesthetic role to align with the room's theme or concept. The selection of flooring materials in this design considers factors such as functionality, material safety, comfort, ambience, ease of maintenance, and quality.

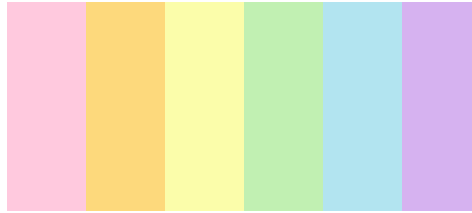
Table 2. Flooring Options Plan

Area	Desired criteria	Selected Floor Type	Picture
Terrace	Many colour choices, easy maintenance, safe, durable, scratch resistant, clean and shiny.	Crema Marfil marble in sea green pattern Size: 45 x 45 cm	
Locker area, activity room, children's bedroom, baby's bedroom, therapy room, consultation room	Resistant to damage such as impact, water and bacteria resistant, easy installation, easy maintenance, looks natural, many choices of motifs, affordable price	Vinyl SPC Balian Flooring, colour Locking system without adhesive or glue. Size: 122x18x0,65 cm	
Adult bathroom	Textured, anti-scratch, can adjust temperature, various motifs and sizes	Terrazzo / blue checkered tiles. Size: 25x25 cm	
Children's bathroom	Textured, anti-scratch, can adjust temperature, various motifs and sizes	Terrazzo / greenish tile with checkered motif. Size: 25x25 cm	
Kitchen	gives a modern impression, smooth and cool texture, durable, easy care, affordable prices, various motifs and sizes	Floral motif tile floor	

2) Wall Treatment

Walls are a vital component of any building and play an essential role in the aesthetics of interior design. Walls can be classified into two types: structural and non-structural. Therefore, proper wall

treatment is necessary to ensure functionality and provide comfort for both children and adults. The design process must meet child-friendly criteria, such as selecting patterns that are not overly busy, colours that are cheerful yet not too striking, and materials that are easy to maintain, of high quality, and safe for both children and adults.

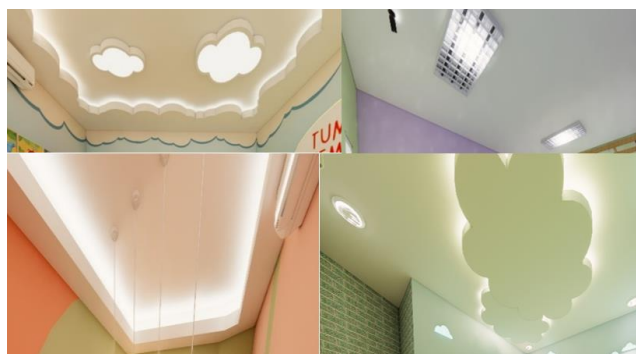


Picture 3. Wall Color Palette

The wall treatment in this design predominantly utilises wallpaper and paint, with some rooms featuring murals. Wallpaper was selected for its ease of installation and variety of patterns. The wall paint used is anti-bacterial, ensuring a safer and healthier environment for children. Simple geometric patterns were chosen for the walls to make them visually appealing without distracting or overstimulating children, particularly those prone to tantrums. Murals were designed to align with the child-friendly, nature-inspired theme. Pastel colours dominate the palette to create a calm and welcoming atmosphere.

3) Ceiling Treatment

The ceiling, or plafond, serves as the upper interior element, often non-structural and functioning as a roof covering. Ceilings help to lower the spatial scale, define room boundaries, and add visual appeal. Ceiling treatment must consider several factors, including material, durability, theme compatibility, aesthetics, safety, and comfort, particularly for children. The ceiling design in the interior development of the Tumbuh Kembang Sinduharjo Daycare employs gypsum for all rooms. White gypsum was chosen for its advantages: easy installation, simple repairs, lightweight properties, eco-friendliness, cost-effectiveness, availability in various patterns, and minimal heat absorption. Gypsum is considered suitable and safe for children. Thus, each room features gypsum ceilings with varying designs to avoid monotony and enhance visual interest.



Picture 4. Daycare Ceiling/Plafond Treatment

Each room, as illustrated in Picture 4, features a unique ceiling design. The locker and children's sleeping rooms incorporate cloud-shaped ceilings, while the therapy room, terrace, activity areas, and bathrooms utilise simple, flat ceilings. The kitchen ceiling adopts a layered design, surrounding the walls with concealed lighting, similar to the consultation room ceiling. This layered ceiling adds volume, giving the space a fuller and more dynamic look while complementing the thematic design. Conversely, flat ceilings provide a sense of spaciousness. Unlike other areas, the semi-outdoor playroom lacks a ceiling, instead using a skylight, which creates a sense of height and

openness while serving as a primary light source.

g) Analysis of Spatial Condition

The analysis of spatial conditions includes lighting, ventilation, and acoustics to ensure the design meets functional and aesthetic requirements while supporting the thematic goals. Below is the spatial condition analysis conducted for the daycare design:

1) Lighting

Lighting involves arranging the space to achieve the desired brightness and fulfil visual needs. The interior development of the Tumbuh Kembang Daycare employs two primary lighting types:

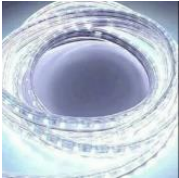
- **Natural Lighting**

Natural lighting comes from sunlight entering through windows, vents, and primarily through the skylight in the semi-outdoor playroom.

- **Artificial Lighting**

Artificial lighting uses lamps in each room, which are adjustable to meet spatial needs. This lighting emphasises functionality, quality, support for spatial ambience, ergonomics, and the aesthetics of the fixtures to enhance the beauty and thematic elements of the rooms.

Table 3. Artificial Lighting Plans in *Daycare* Design

Light type	Placement
 <i>Downlight LED</i>	In all rooms except the therapy room.
  <i>LED Strip</i>	On the tiered ceiling inside, LED strip lights are used, such as in the locker room, children's bedroom, kitchen, consultation room, and reading corner.
 <i>LED Panel neon grill</i>	Placement in the therapy room
 <i>Spotlights</i>	Placement in the therapy room, therapy corner.



Chandelier

Placement in the kitchen



Night lamp

Placement on the walls of children's bedrooms and baby bedrooms

2) Ventilation

The Tumbuh Kembang Daycare design incorporates two primary ventilation systems: natural ventilation and air conditioning. To ensure comfort, the ventilation system is carefully considered. The existing ventilation in the daycare includes vents, windows, and an open central space, which already provides good airflow. Thus, the design retains this setup, using natural ventilation alongside air conditioning. AC units are installed in all enclosed spaces, while activity rooms and semi-outdoor areas emphasise abundant ventilation, particularly above the semi-outdoor play area. This approach supports the room's function, ensures easy maintenance, and enhances overall comfort.

3) Acoustics

The acoustic arrangement in the daycare design aims to minimise external noise while containing internal sounds. The soundproofing requirements for the Tumbuh Kembang Daycare are met through the use of sound-absorbing walls and wall coverings. Materials such as ceramic, marble, tile, vinyl, and carpet for flooring, along with wallpapers and other wall coverings, effectively dampen sound. Since the daycare is not situated in a noisy urban area, specialised soundproof panels are unnecessary.

h) Furniture Analysis

The child-friendly concept is also reflected in the furniture and facilities selected for the design. Child-friendly furniture prioritises materials, shapes, and colours that are safe for children. Based on this concept, the primary materials used include multiplex, plywood, and solid wood, such as teak, balsa, and sungkai. Multiplex and plywood are chosen for modular furniture due to their lightweight yet durable nature. Solid wood is used for fixed or less mobile furniture.

To enhance durability, furniture finishing is essential. High-pressure laminate (HPL) and resin are commonly used to improve aesthetics and preserve materials. Duco paint with a water-based acrylic pigmented formulation is also applied for its versatility on various wood types, suitability for both indoor and outdoor use, and safety for children. This eco-friendly paint is durable, odourless, and weather-resistant, with long-lasting colours. Other finishes include veneer and varnish for wood surfaces.

Furniture design avoids sharp edges and corrosion-prone materials. Many pieces include soft or cushioned components made from polyester, cotton, or nylon to ensure safety.

Toys for children are selected based on appropriate size standards and comply with the government's Educational Play Equipment (APE) guidelines. APE-certified toys allow children to explore safely, with requirements for strength, durability, and non-glass materials such as sponge, foam, rubber, plastic, and fabric. The toys feature bright, non-dull colours to enhance visual appeal.

Concept Implementation

The results of the interior design development for the Tumbuh Kembang Daycare include both 2D and 3D design visualisations. These designs consist of technical drawings and sectional views created using AutoCAD 2007 at a 1:1 scale. Additionally, perspective images are presented in 3D using SketchUp 2020, with rendering performed in Enscape to achieve realistic visualisations.

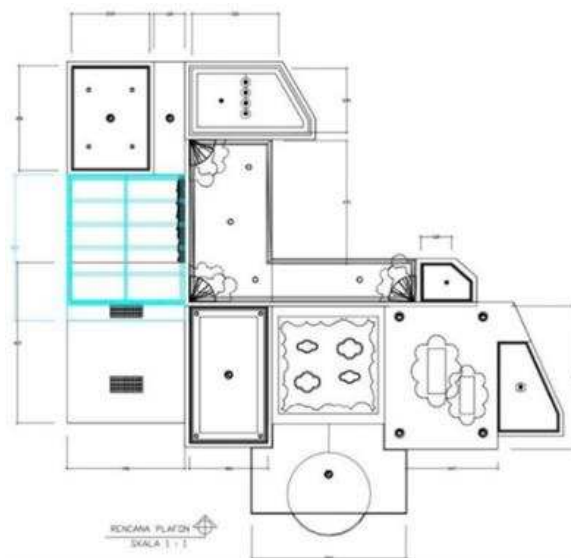
a) Floor Plan



Picture 5. Floor Plan

The light brown wood-patterned SPC Vinyl Flooring (Balian Flooring) is applied in the lobby, activity room, children's bedroom, baby room, consultation room, and therapy room. Marble flooring measuring 45 x 45 cm is used for the front terrace, while 25 x 25 cm tiles are installed in the bathrooms, and 30 x 30 cm floor tiles are applied in the kitchen. Foam flooring is utilised in several areas, such as the activity room, consultation room, semi-outdoor playroom, and children's activity room. Additionally, carpets of various sizes and types are used in different rooms, with a rug placed in the lobby.

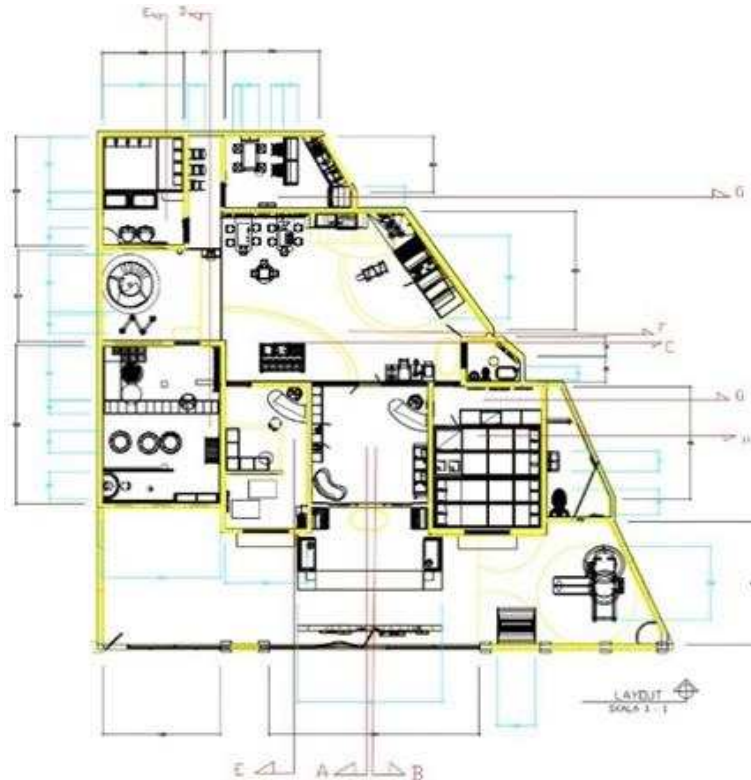
b) Plafond Plan



Picture 6. Plafond Plan

Each room is designed using the same type of ceiling but with varying shapes to suit the character of the space. The use of lighting fixtures in each room is also similar, with differences in size and type, such as LED lights, incandescent bulbs, and recessed lighting. The ceiling colour is uniformly white to maintain a neutral effect.

c) Layout

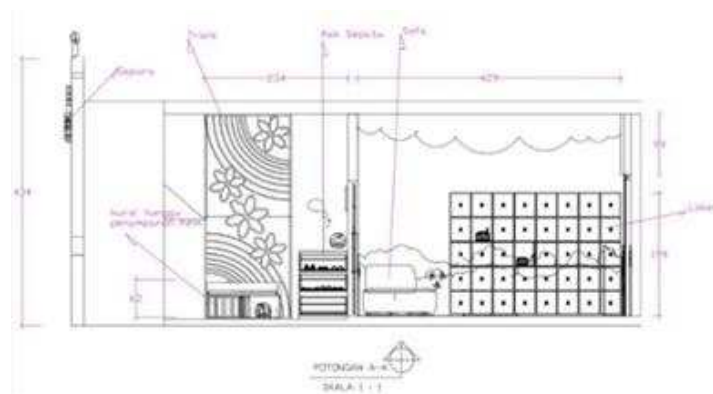


Picture 7. Layout

Picture 7 illustrates the furniture and facilities from a top-down view, providing details on their placement and dimensions within the designed spaces. The arrangement of furniture aligns with the requirements of each room, and the selected furniture sizes adhere to standards suitable for children.

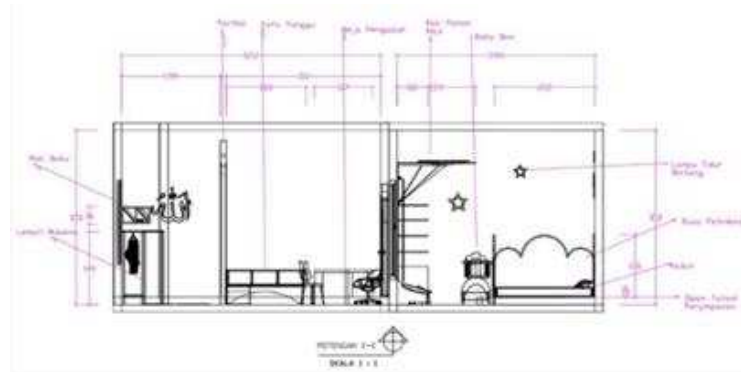
d) Sections

The building is sectioned to reveal the interior details of the rooms. In this design development, the building is divided into eight sections as follows:



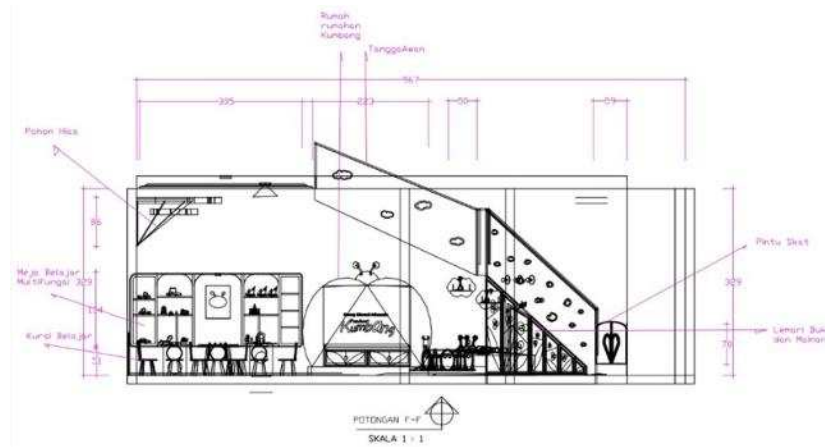
Picture 8. Section A-A

Section A-A highlights furniture elements such as railings, seating, shoe racks, sofas, and lockers, reflecting the characteristics of the waiting area and storage or locker space.



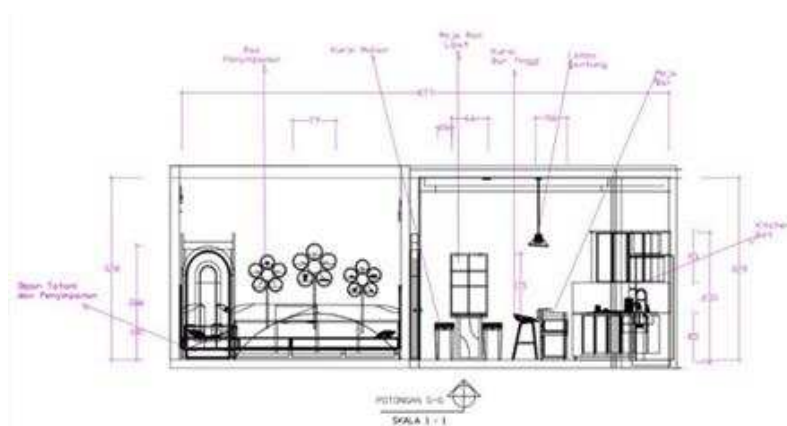
Picture 12. Section E-E

Section E-E focuses on the prayer room, consultation room, and children's sleeping area, revealing various facilities such as a mukena cabinet, bookshelves, consultation waiting sofas, consultation desks and chairs, a tree-shaped wall cabinet, baby cribs, mattresses, and unique wall motifs.



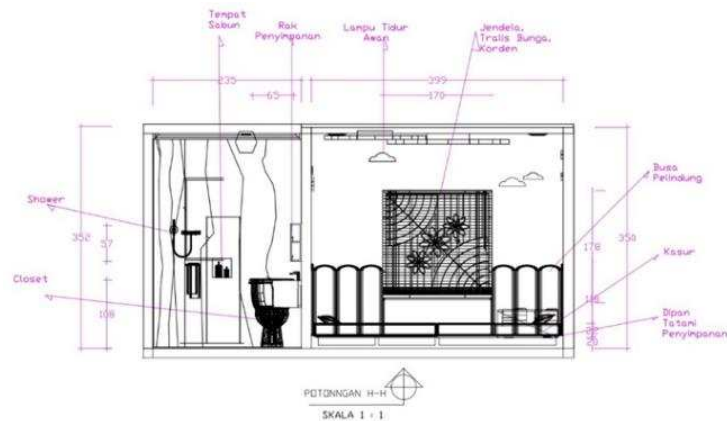
Picture 13. Section F-F

Section F-F displays the furniture and play equipment in each room, such as study chairs, desks, a ladybug-shaped playhouse, bookshelves, toy racks, stairs, and decorative items. A staircase with cloud motifs, as well as a partition door connecting the first floor to the stairs leading to the second floor, are visible. The ladybug-shaped playhouse serves as both a play and learning space for children.



Picture 14. Section G-G

Section G-G cuts through the bedroom and kitchen. The bedroom includes a flower-shaped shelf and bed frame, while the kitchen section highlights a countertop, kitchen set, and hanging lights.



Picture 15. Section H-H

Section H-H cuts through the children's bedroom and the adult bathroom. The adult bathroom features a toilet, shower, and mirrored rack. The children's bedroom includes a window, protective cushions, tatami mats, a mattress, and a cloud-shaped night lamp.

e) Interior Atmosphere (Perspective)

This section presents realistic renderings of the design to clarify the form, colour, size, and layout of each room from various angles. The interior design development for the Tumbuh Kembang Daycare in Sinduharjo includes fifteen perspective images, as described below:

1) Front Outdoor Area



Picture 16. Front Outdoor Area

Picture 16 shows the design of the gate, arch, and playground, which reflect the daycare's theme and branding. The fence features ladybug motifs at the centre and sides, while the outdoor area includes a garden and a separate parking space. The arch is also designed with ladybug imagery, and the walls feature minimalist murals in pastel colours.

2) Front Playground Area (Outdoor)



Picture 17. Front Playground Area

Picture 17 displays the outdoor garden in front of the daycare, equipped with swings suitable for both children and adults. The garden includes a set of play equipment such as slides, climbing bars, a wooden climbing frame, and a mushroom-shaped playhouse.

3) Waiting Terrace Area



Picture 18. Waiting for Terrace Area

Picture 18 shows a waiting area with seating and helmet storage, two closed shoe racks, an information board, posters, and a welcome sticker. The terrace area is designed with floral-patterned railings, welcome stickers, and a glass door and window at the front.

4) Locker Area and Lobby



Picture 19. Locker Area and Lobby

Picture 19 illustrates a room with 40 lockers, each featuring insect motifs and equipped with locks. The room also includes corner sofas, a multi-functional caterpillar-shaped storage sofa, a table, and chairs for daycare staff. The flooring is light brown wood-patterned vinyl, complemented by green circular rugs.

The walls feature 3D striped green WPC wall panels and spinning flower toys. The ceiling is made of cloud-shaped gypsum with integrated lighting.

5) Children's Activity Area



Picture 20. Children's Activity Area

Picture 20 highlights the activity room perspective. The ceiling features tree-shaped decorations, the walls have murals, and the stairs have cloud motifs. Natural lighting is prioritised, with minimal artificial lighting.

6) Semi Outdoor Garden Area



Picture 21. Semi Outdoor Garden Area

Picture 22 shows the semi-outdoor play area equipped with a skylight. The area includes mushroom-shaped slides, zig-zag balancing beams with foam cubes, and a ball-playing area with a basketball hoop.

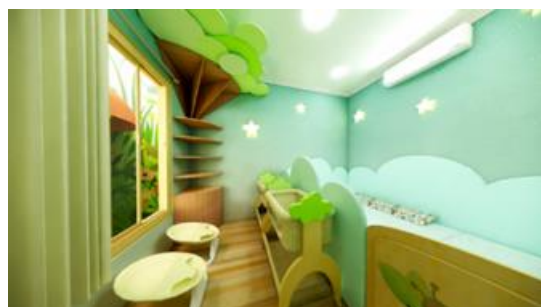
7) Children's Bedroom Area



Picture 22. Children's Bedroom Area

Picture 22 depicts a child's bedroom with a mattress, multifunctional tatami bed, flower-shaped storage shelves, and mountain-themed wallpaper. The room features a cloud-shaped gypsum ceiling and cloud-shaped nightlights in the central area.

8) Baby Bedroom Area



Picture 23. Baby Bedroom Area

Picture 23 presents the baby's room, characterised by baby cribs, mattresses, and baby swings. Supporting elements include a tree-shaped wall shelf.

9) Therapy Room Area



Picture 24. Therapy Room Area

Picture 24 illustrates the motor therapy room with equipment such as swings, climbing bars, balls, slides, a trampoline, and other toys. The room is equipped with mats on the floor and walls and a partitioned area for fine motor therapy, featuring a therapy mirror and a toy storage cabinet.

10) Consultation Room and Worship Room Area



Picture 25. Consultation Room and Worship Room Area

Picture 25 showcases the prayer room with a decorative “Allah” inscription on the wall, a prayer garment cabinet, a bookshelf, and prayer mats. The consultation room includes a waiting sofa, a consultation table and chairs, simple wall patterns, and a carpeted floor.

11) Children's Bathroom Area



Picture 26. Children's Bathroom Area

Picture 26 provides a perspective of the children's bathroom, which includes child-sized toilets, sinks, a baby bathtub, a shower, and a storage rack for toiletries. All furniture is designed to fit children's sizes.

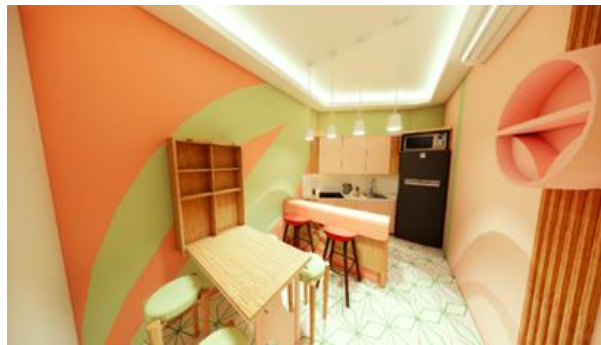
12) Adult Bathroom Area



Picture 27. Adult Bathroom Area

Picture 27 displays the adult bathroom, featuring standard-sized toilets, sinks with mirrors, and a shower. The walls are predominantly white for a clean look.

13) Kitchen Area



Picture 28. Kitchen Area

Picture 28 presents the kitchen design, equipped with a multifunctional table and chairs, a bar set with hanging lights above, and a complete kitchen set. The kitchen has a pink and green colour scheme.

14) Hand Washing Area



Picture 29. Hand Washing Area

Picture 29, as shown in the perspective image, includes sinks placed in the semi-outdoor garden. These sinks provide easy access for children to wash their hands before and after activities, with their location outside the bathroom ensuring convenience.

CONCLUSION

Based on the results and discussion above regarding the design of child-friendly interior design at the Tumbuh Kembang Daycare in Sinduharjo, Yogyakarta, the following conclusions can be drawn:

1. Child-Friendly Concept

The design process is always based on aspects of comfort, safety, functionality, and aesthetics. Comfort is realised through furniture that meets the needs of the children. Safety is ensured by providing facilities and infrastructure that adhere to child safety standards. Functionality is addressed through the use of multifunctional furniture. Aesthetic value is seen in the treatment of spaces, including the floor, walls, and ceiling, which are both beautiful and safe. The colours used in the design, predominantly pastel shades, are chosen to prevent tantrums, especially for children with special needs, while still creating a cheerful and child-friendly environment. The design optimises the use of space, transforming previously unused areas into functional spaces that provide ample room for children to learn and play.

2. Visualization of the Child-Friendly Concept

The development of the daycare design utilised a Research and Development (R&D) method. The process involved several stages, including identifying potential issues and challenges, collecting data, designing the product using applications such as SketchUp, AutoCAD, and Enscape, validating the data with the assistance of design experts and daycare managers, revising the design, and conducting product trials in conjunction with the second round of validation. The design outputs were presented in the form of 2D and 3D images, as well as video presentations.

The child-friendly concept is the core of the interior design of the Tumbuh Kembang Daycare in Sinduharjo, Yogyakarta. This concept prioritises safety, comfort, and care for children, aiming to create an environment conducive to healthy, safe, and clean activities that meet the needs of children. Safety is reflected in the design of furniture and toys that are safe for children, with an emphasis on rounded edges to minimise the risk of injury. Comfort is provided through the facilities and atmosphere, which are designed to be both cheerful and calming, ensuring a pleasant environment for both children and educators during activities. The design also takes into account the varying needs and limitations of children by creating facilities suited for typical children, infants, and children with special needs.

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