International Journal of Architecture and Urbanism Vol. 08, No. 01 (2024) 1 – 16

International Journal of Architecture and Urbanism

Journal homepage: https://talenta.usu.ac.id/ijau

Study of Futuristic Architectural Forms Towards the Function of Convention Buildings (Case Study: Indonesia Convention Exhibition (ICE), BSD)

Dea Harum Nugrahaini*[1], Ade Syoufa [1]

[1]*Department of Architecture, Faculty of Civil Engineering & Planning, Universitas Gunadarma, Depok, 16424, Indonesia*

*Corresponding Author: derumni22@gmail.com

ARTICLE INFO

Article history:
Received 18-01-2024
Revised 26-01-2024
Accepted 30-01-2024
Available online 31-03-2024

E-ISSN: 2622-1640
P-ISSN: 2622-0008

How to cite:
Nugrahaini, Dea Harum., Syoufa, Ade. Study of Futuristic Architectural Forms Towards the Function of Convention Buildings (Case Study: Indonesia Convention Exhibition (ICE), BSD). International Journal of Architecture and Urbanism. 2024. 8(1):1-16.

http://doi.org.10.32734/ijau.v8i1.15411

ABSTRACT

According to the *'Encyclopedia of 20th Century Architecture'*, the form of a building must be derived from the fulfillment of the function it serves [1]. The form obtained can also be one aspect of the characteristics of an architectural style, such as in Futuristic Architecture. This research takes a case study of the Indonesia Convention Exhibition (ICE) building, BSD. Based on theoretical studies in various literatures, the characteristics of the Futuristic Architecture form are formulated, which are (1) dynamic form, (2) varying dimensions, (3) colors and textures are more striking but still simple, (4) shape and orientation can be interpreted differently from various positions, and (5) unstable visual inertia. The research methods used are descriptive, qualitative, and comparative, which describe the form of Futuristic Architecture found in the case study based on the five characteristics and then make comparisons with other building examples. Based on the analysis, it found that the ICE BSD building is suitable for the characteristic of the Futuristic Architecture form that affects the function of the convention building, and it can concluded that the Futuristic Architecture form has suitability in form, dimensions, color, texture, position and orientation aspect, and unsuitability in visual inertia aspect.

Keywords: convention, form, function, futuristic architecture

1. Introduction

Architecture is a physical space that functions as a fulfillment of human needs in accommodating the activities it carries out so that it becomes a major consideration in architectural design, especially in designing its form [2]. This is also stated in the *'Encyclopedia of 20th Century Architecture'*, that the form of a building must be obtained from the fulfillment of the function it contains [1]. The form obtained is also one of the characteristic aspects of an architectural style, such as in Futuristic Architecture which has a dynamic form or strange shape. The term Futuristic Architecture itself emerged at the momentum of the Futurism art movement in the 20th century introduced by Italian architect Antonio Sant'Elia based on his utopian vision outlined through his exhibition entitled *'L-Architettura Futurista – Manifesto'* as a solution to the problem of rapid growth and movement of industry and population in metropolitan cities. Its appearance also attracted a lot of attention from the public at that time, where it depicted a life that had never been imagined before [3].

The Indonesia Convention Exhibition (ICE) building is a building with the main function as a convention building and also accommodates several other similar functions. ICE BSD is one of the Convention buildings

which also accommodates the largest MICE (Meeting, Incentive, Convention, and Exhibition) activities in Indonesia on an international scale and is the longest exhibition building in Southeast Asia [4]. This makes the Indonesia Convention Exhibition (ICE) building also one of the iconic buildings in the BSD City area which is a city with the concept of "*Integrated Smart City*" according to the CEO of Sinarmas Land, where this concept is a solution in its development project for the future (futuristic). Due to the uniqueness of the concept of Futuristic Architecture based on its historical background and the object of research that became iconic in the area, this is the background of research on the form of futuristic architecture to the function of convention buildings.

This research aims to find out the relationship of the form of Futuristic Architecture to the function of the convention building to explore the understanding of Futuristic Architecture itself. It is hoped that this research can be useful in designing a building with a convention function that applies the concept of Futuristic Architecture, especially in designing the shape of the building.

2. Method

The methods used in this research is descriptive, qualitative, and comparative. The qualitative method is used to understand a phenomenon by describing it thoroughly and in a narrative with a certain background in real life [5]. The characteristics of qualitative methods, namely the explanation of the data obtained in the form of narratives [6]. The descriptive method is a writing method that describes the object of research in real conditions. The characteristic of the descriptive method is that the data is processed using explanatory narratives and images, not in the form of numbers [7]. The Comparative Method is research that compares one, two, or more different variables to produce a conclusion [8]. This research method also uses an inductive thinking approach, which is a way of analyzing data by constructing it into a theory or hypothesis based on facts [9].

This method and approach will be used in this research because following the objectives of this research, it can provide a new theory regarding the relationship between the form and function of buildings that are more specific to the form of Futuristic Architecture to the function of convention buildings. Literature Study collection techniques, which obtain secondary data in the form of technical drawings, photographs of original and supporting conditions, and other information related to the ICE BSD building. Some technical drawings or 3d models that are not or difficult to obtain, are recreated in such a way using SketchUp software so that data for analysis can be fulfilled. In the analysis process, Microsoft PowerPoint software was also used to process the data obtained.

The research was conducted by analyzing data regarding the theory of Futuristic Architecture characteristics from various expert views, and studies of Futuristic Architecture forms in several comparative studies of similar themes. This aims to get a new theory that is more specific to the characteristics of the Futuristic Architecture form. After that, identify the function of the ICE BSD building as a convention building. Then, an in-depth analysis of the object of research was performed, which has been described based on aspects of form characteristics, namely form, dimensions, color, texture, position, orientation, and visual inertia, each of which has been identify by the form of Futuristic Architecture and its influence on the function of convention buildings as seen through case study comparisons with other convention buildings, and given the conclusions. The conclusion of each aspect is then further collected which leads to the research topic.

3. Result and Discussion

3.1 Characteristics of futuristic architectural forms

According to The American & heritage dictionaries, Futuristic means relating to the future, characterizing or expressing an innovative and revolutionary picture of the future. Futuristic architecture is a type of architectural style that refers to the future that characterizes the technological advances applied in its construction, including the shape and materials used in a building. Buildings that impress towards the future or follow the renewal of the environment due to the times mean that they have a Futuristic image [10].

Futuristic architecture was first introduced by Antonio Sant'Elia in 1914 in his exhibition with F.T Marinetti entitled *'L-Architettura Futurista – Manifesto'*, which means Futuristic Architecture Manifesto. Sant'Elia and his colleague Chiattone formulated a utopian vision of a grand futurist city as a solution to the problem of rapid industrial and population growth and movement in metropolitan cities, which he called 'Citta Nuova', meaning New City [3].

According to Vitruvius, form is associated with function so that form means a combination of technique (firmistas) and beauty (venustas). According to Mies van der Rohe, form is the final form of completion of a construction. According to D.K Ching (1979), form is also called form which means the construction of surfaces and sides. To find out the characteristics of the form of futuristic architecture, an analysis of several examples of buildings with the style of Futuristic Architecture based on the visual characteristics of the form according to D.K Ching, namely (1) form, (2) dimensions, (3) color, (4) texture, (5) position, (6) orientation, and (7) visual inertia [1].

The Kunsthaus Graz (Graz Art Museum)

Figure 1 shows the Graz Art Museum's characteristic of free-form structure, which demonstrates fluidity, nonlinearity, organization, and continuity, which is an interpretation of The Blob Theory by Greg Lynn. The dark blue color and smooth wavy textures are striking against the surrounding environment while remaining simple, as shown in Figure 1 (a). From various points of view, such as in the site plan (Figure 1b) and section plan (Figure 1c), the shape and orientation seem different because of the asymmetrical shape of each part [11].

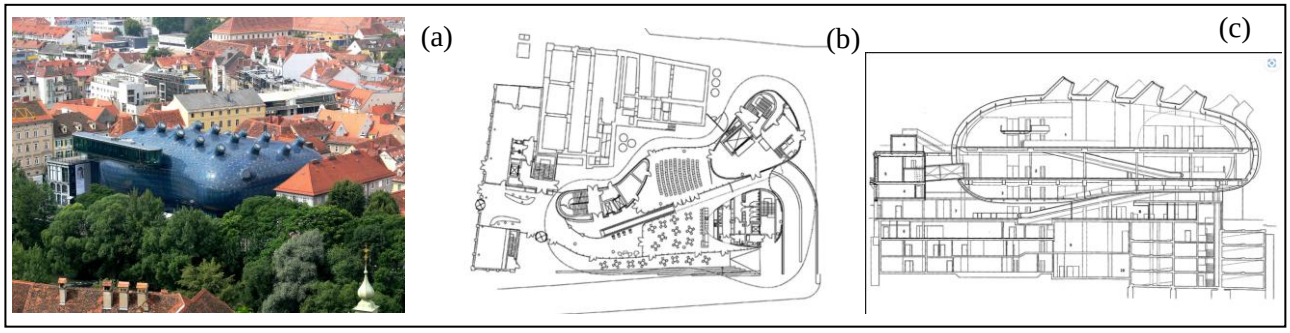

Figure 1 (a) Original Condition of The Kunsthaus Graz; (b) Site plan; (c) Section

***Source**: commons.wikimedia.org* [12] *and inexhibit.com* [13]

King Power Mahanakhon

The King Power Mahanakhon building as having the concept of creating a floating living space in the city with a building shape like a pixel sculpture, as shown in Figure 2 (b). The spiral shape of this pixel shape game creates a dynamic building form with an unstable balance when viewed from various directions, and has a striking surface texture. The use of blue colored glass compared to the surrounding buildings that are dominated by white concrete and glass and the height of the building that also exceeds the surrounding tall buildings makes it more striking (Figure 2a) [11].

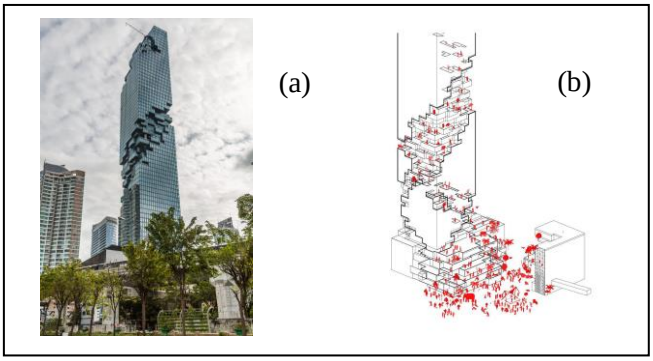

Figure 2 (a) Original Condition of King Power Mahanakhon; (b) Design Concept of King Power Mahanakhon

***Source**: commons.wikimedia.org* [14] *and archdaily.com* [15]

The Jockey Club Innovation Tower (JCIT)

Figure 3 shows The Jockey Club Innovation Tower (JCIT) building has a dynamic form because it is influenced by the building concept, namely the fluid concept depicted on the building front. The asymmetrical shape contrasts with the neighboring geometric and symmetrical buildings (Figure 1b), and the usage of white aluminum material around the red brick color makes it stand out in the surrounding area (Figure 1a) [16].

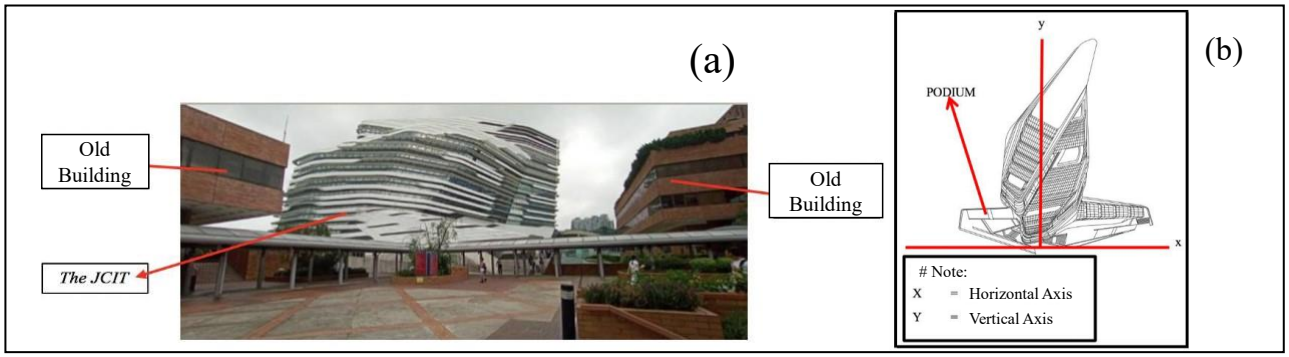

Figure 3 (a) Comparison of JCIT Building shape around other buildings; (b) JCIT Building Perspective

***Source**: Sahar & Aqli, 2020* [16]

Based on the three studies of building examples, it is concluded that the Futuristic Architectural Form has the following characteristics: (1) Dynamic forms such as organic, fluid, spiral, or have curving lines that are not rigid. (2) Varying dimensions that alter as a result of the form's shape being followed. (3) Colors and textures stand out from their surroundings, providing the impression of assertiveness while remaining simple and homogeneous, despite the variety of play. (4) The shape and orientation might be viewed differently depending on where you look. (5) Because of the dynamic form, visual inertia is particularly unstable (asymmetrical) at each point of view.

3.2 Function of Convention Building Forms

Form and function are interrelated as stated by the Encyclopedia of 20th Century Architecture, the form of a building must be obtained from the fulfillment of the function it accommodates. For this reason, we will elaborate on the basic theories of function in architecture and the function of buildings as a function of Convention activities [1]. According to Christian Norberg Schultz, there are four functions of buildings, namely [17]: (1) **Physical Control**, which is the relationship between the building and its environment. (2) **Functional**, which is the ability of the building to accommodate human activities in it. (3) **Social Environment**, namely the continuity of the social interaction process and can have a psychological impact on the socio-cultural environment. (4) **Cultural Symbolization**, which describes the cultural values found in the community where the architecture is located.

According to the Decree of the Director General of Tourism Number: Kep-06/U/IV/1992; article 1 regarding the implementation of convention, incentive travel and exhibition services, Convention is an activity in the form of meetings between groups to discuss issues related to common interests or exchange information about new matters to be discussed. According to Fred Lawson (1981), conventions have various types of activities, such as workshops, seminars, panels, forums, lecture symposiums, and institutions. Location planning and achievement to the building must meet several conditions, namely Location adjacent to the main road and smooth traffic, adjacent to star hotels and offices, Has a traffic system with a large enough road width, The entrance must be clearly visible and easily recognizable, The entrance must have bag drop facilities that can be passed by cars and taxis [18].

3.3 *Relationship between Futuristic Architectural Forms and Convention Building Functions*
Form

According to D.K Ching's core theory, form is the product of the composition of surfaces and sides [1]. A dynamic form is possessed by Futuristic Architecture as a result of the conclusion of the research of basic theories that have been carried out. According to the site plan in Figure 4 (a), the exterior shape generated in the ICE BSD building has two variations: the wave-like form on the top (Figure 4b) and the curved shape on

the one side (Figure 4c), indicating that the building has a dynamic form.

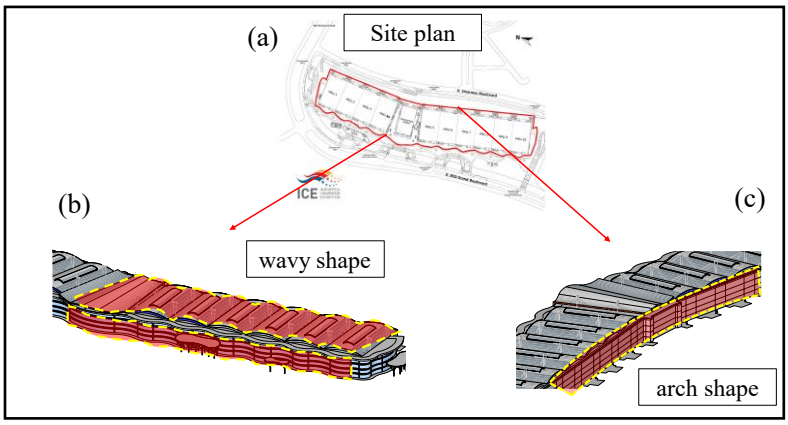

Figure 4 (a) ICE BSD's Site Plan (b) A wave-like shape; (c) A curved shape

***Source**: baa.mercubuana.ac.id* [19] *and Personalized Analysis*

The structural system built has a significant influence on the shape of the building, and the structure is one of the factors considered while developing the shape of an architecture [20]. The ICE BSD building employs a wide-span construction, specifically a tensile cable network structure with a roof covered with a trimdek membrane, and a flexible metal layer, as shown in Figure 5 (a). According to Handoko and Nugroho (2019) in [21], this structure is a form active structure since it can suit the unique requirements of buildings with large spans. This wire and membrane framework is flexible enough to alter the dynamic form of the building, making it ideal for Futuristic Architecture-style buildings. Because this cable and membrane structure has a very large span of durability, the columns utilized will be fewer (Figure 5b). Many spaces lack columns in the middle, making the room feel larger and allowing the function of the activities contained within it to be varied and maximized properly, as evidenced by the availability of layout plans in the ICE BSD building, which vary depending on the type of activity (Figure 5c).

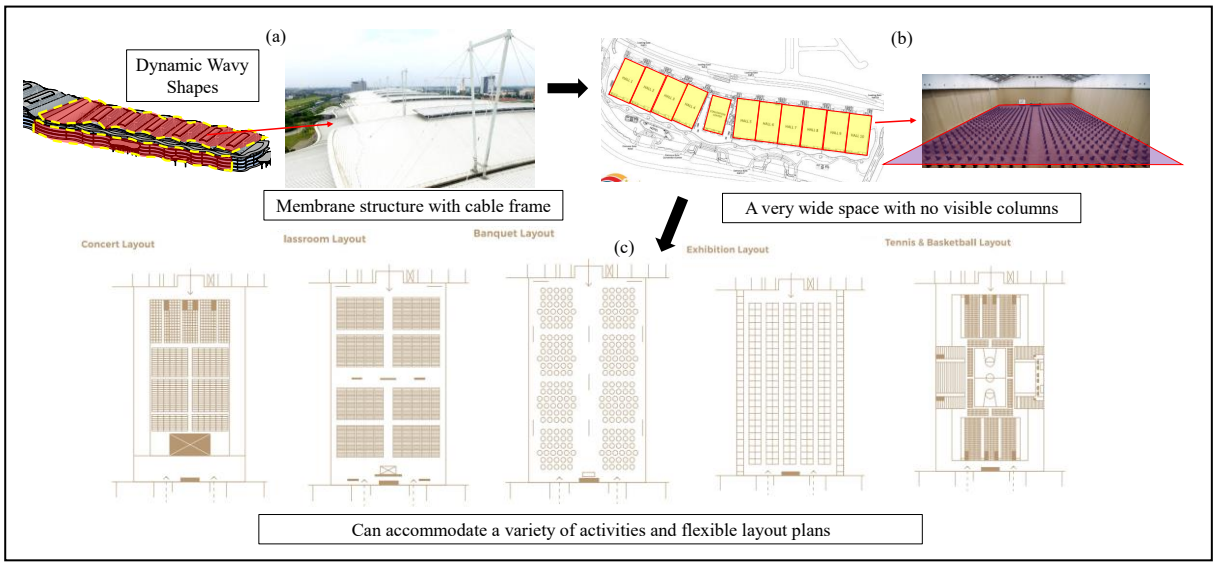

Figure 5 (a) The wide-span structure used; (b) The minimal column space due to the use of the structure; (c) The number of activities sheltered in the space

***Source**: Various Sources* [21-22] *and Personalized Analysis*

When compared to other convention buildings, such as the Los Cabos International Convention Center in Mexico in Figure 6a, which has a geometric shape, namely a rectangle (Figure 6b) and does not use a wide-span structure, causing the building to use many columns and the columns are large in holding long wide spans which results in some shortcomings as shown in Figure 6c, where when the partitioned rooms were combined at certain events, the columns in the center of the room will reduce the visual view of visitors who are nearby, so this also shows that the layout planning of the convention activity plan is not very flexible as in the ICE

BSD building.

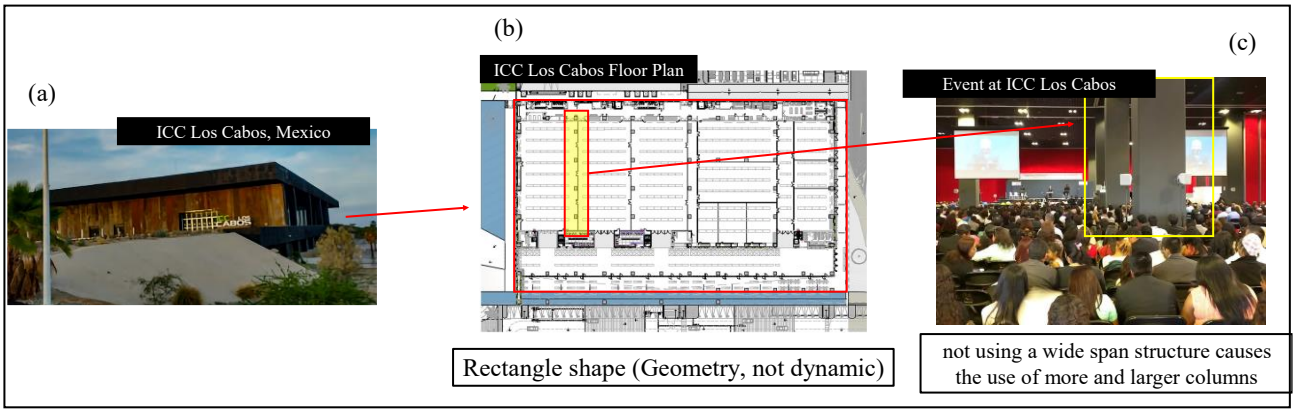

Figure 6 Exterior form and structure of Los Cabos International Convention Center (a) Los Cabos ICC building, (b) Floor Plan Shape (c) the result of not using wide-span structures that can be adaptive to dynamic form.

***Source**: Various Sources* [24]-[26]*and Personalized Analysis*

The interior, as shown in the site plan in Figure 7a, contains three types of shapes: the trapezoidal shape (blue), the rectangle (yellow), which is a geometric shape placed obliquely following the curve of the land, and a part of the shape in the form of waves (red). The combination of forms used in this interior emphasizes the major purpose of a convention building (trapezoidal shape between rectangles), and the separation of functions between spaces is quite evident, allowing the functions of different activities in it to be easily identifiable. Unlike the form of ICE BSD in the interior which has a combination of dynamic and geometric forms so that there is a clear separation of functions between spaces, the interior of the Los Cabos ICC building only has one form of the same shape, namely rectangular so that when viewed in Figure 7b, the separation of new space functions will be clearly visible if the plan is given color and description of the function of the space , compared to if it does not give colors or annotation and description of the space because the form does not vary.

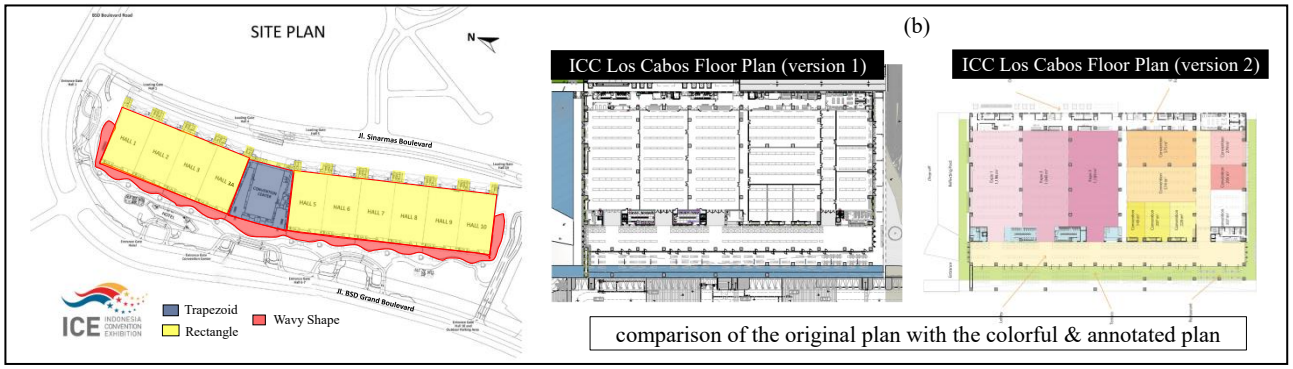

Figure 7 (a) Form in the interior of the ICE BSD building (b) Form in the interior of the Los Cabos ICC building in Mexico.

***Source**: Various Sources* [19], [25], [27] *and Personalized Analysis*

From the explanation above, it concluded that the suitability of the dynamic form owned by the ICE BSD building both on the exterior and interior, affects the function of the convention building at ICE BSD in physical and functional control, as shown by the utilization of space that can optimized due to the use of wide-span structures and clear lines separating functions between spaces so that they are suitable with the function of the convention building compared to buildings that have a geometric form.

Dimensions

D.K. Ching defines dimensions as length, width, and height, which establish the proportions of a form [1]. According to the conclusion of the characteristics of the Futuristic Architecture form, its dimensions are influenced by its form, with the dynamic form of the building creating various building dimensions. When

viewed from the outside, the dimensions fluctuate due to the dynamic form used; nonetheless, as shown in Figure 7 (a), the dimensional variations caused remain consistent, giving the idea of homogeneity. The inside of the exhibition hall is a rectangular geometric shape, with each hall divided equally (Figure 7b), generating a sense of homogeneity.

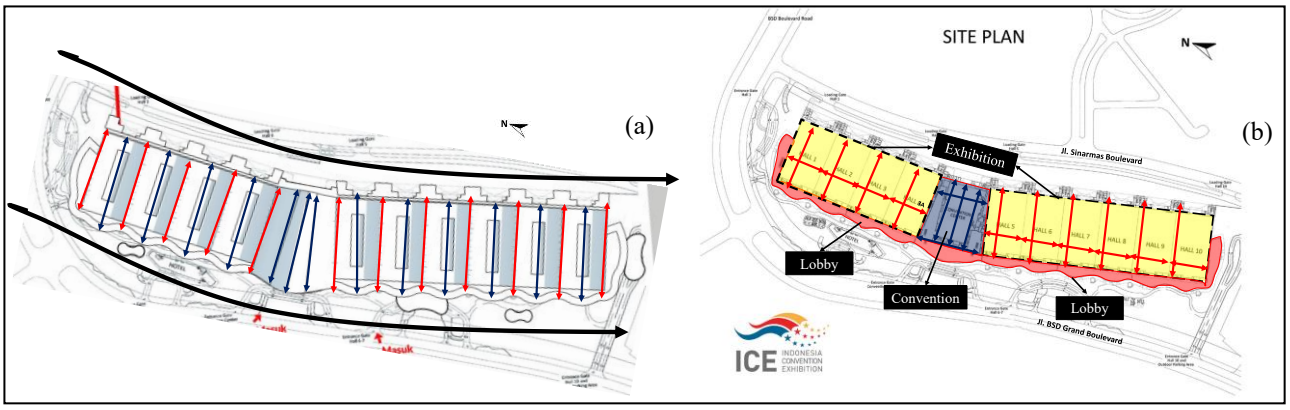

Figure 8 Dimensions in ICE BSD Building (a) Dimensions on the exterior; (b) Dimensions on the interior

***Source**: baa.mercubuana.ac.id* [19] *and Personalized Analysis*

Compared to the Los Cabos ICC building, as indicated in Figure 9, its outside dimensions are less variable (Figure 9a). The interior dimensions vary in the long and short play of dimensions, but not as much as the ICE BSD building. The existing dimensional variations do not highlight the primary function of a convention center building as much as the ICE BSD building, as shown in Figure 10b, because the dimensions of the convention center space are smaller than the dimensions of the expo space, creating ambiguity about the building's primary function.

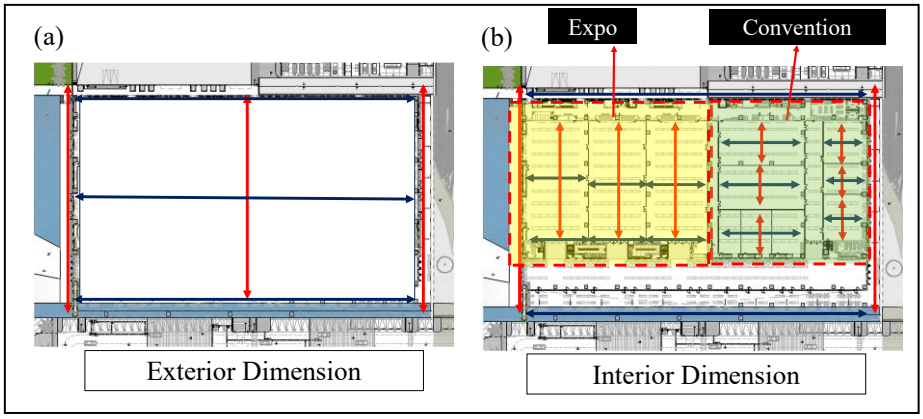

Figure 9 Dimensions in Los Cabos ICC :(a) Dimension s on the exterior; (b) Dimensions on the interior

***Source**: archiweb.cz* [25] *and Personalized Analysis*

The dimensions of the ICE BSD building vary according to the dimensional explanation contained in the characteristics of the Futuristic Architecture form, which is attributable to the form's dynamic shape. The relationship of varied dimensions with the function of the convention building, both exterior and interior forms, affects it in physical and functional control, as shown by the ease of making plan layout options and clarity of space that is suitable for the primary function of convention in buildings, as opposed to buildings with geometric forms whose dimensions are less varied.

Color and Texture

Color distinguishes a form from its surroundings, whereas texture is the quality of a surface that can be felt when touched [1]. According to the qualities of the Futuristic Architecture form, the colors and textures employed should stand out from the surrounding environment while still conveying a straightforward impression. In Figure 10a, the color used in the ICE BSD building is dominantly white which looks striking, from the surrounding buildings using more color combinations (Figure 10a). That can make it easier for visitors

to recognize the building while visiting, and make the building an icon of the BSD area. When compared to the color of the Jakarta Convention Center (JCC) building, in Figure 10b, the exterior of the JCC building is seen using green and white colors and appears to blend with its environment when viewed from above or in perspective, the surrounding environment uses green because there is still have much vegetation and the white color is also widely utilized in other buildings around it so that the JCC building is not striking from the surrounding environment and can make visitors more extra in recognizing the JCC building.

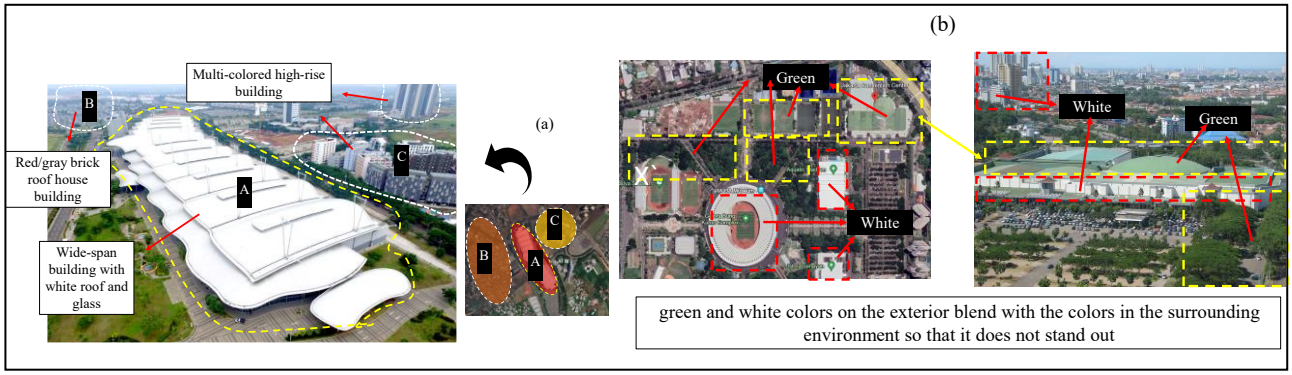

Figure 10 (a) The color of the ICE BSD and its environment; (b) The color of the Jakarta Convention Center (JCC) and its environment.

***Source**: Various sources* [22], [28]-[29] *and Personalized Analysis*

Similarly, the inside uses only a few of the same hues to convey a sense of simplicity, mainly white, grey, and brown, as seen in Figure 11. Although the floor has a combination of batik pattern colors utilized in different rooms, the chosen pattern color appears uniform, unifying these colors as if they were one hue and giving the space unique Indonesian features.

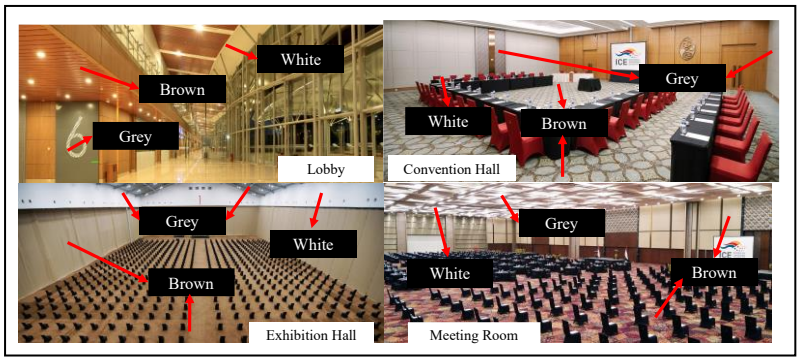

Figure 11 Colors and textures used in the interior of the building

***Source**: Various Sources* [22], [24-25] *and Personalized Analysis*

However, in contrast to the striking impression produced in the comparison of the color of the ICE BSD building with its environment, in the interior, if the color of the building is compared with the combination of colors used in exhibition activities that have taken place, it gives an unobtrusive impression so as not to create the impression of a confusing room and the visitor will focus on the activities in the room not in the room, as seen in Figure 12a. In contrast to the interior colors in the Montreal Convention Center building in Canada, as shown in Figure 12b, which has a lot of bright colors on the ground floor which functions as a pre-function hall or lobby because the facade of the building uses colorful glass which causes visitors not to focus on the activity, but rather focus on the room or facade and can interfere with the combination of colors utilized in convention or exhibition activities.

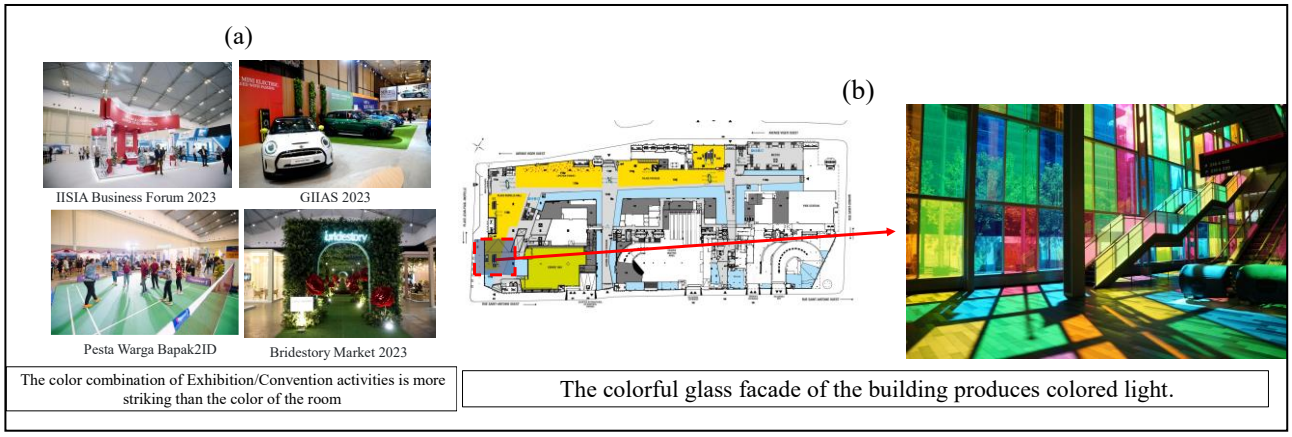

Figure 12 Comparison of building interior colors with the color combination used in exhibition properties: (a) ICE BSD building (b) Montreal Convention Center building, Canada

***Source**: Various Sources* [24-27] [36]-[37] *and Personalized Analysis*

Likewise, the texture of the ICE BSD building in Figure 13a, which gives the impression of a fast, fluid movement due to its dynamic form, makes the texture of the building stand out from the surrounding environment. This fluid impression can also give the impression that the building leads to the future (futuristic), and the activities also use existing technological advances. Compared to the Indiana Convention Center building in Figure 13b uses a texture of perpendicular lines, and when viewed in the surrounding environment, the Indiana Convention Center building appears uniform with the texture of the buildings in its environment, so it does not make the Indiana Convention Center building stand out from its environment so that visitors need extra more to be able to recognize this building, unlike the ICE BSD building which is very striking.

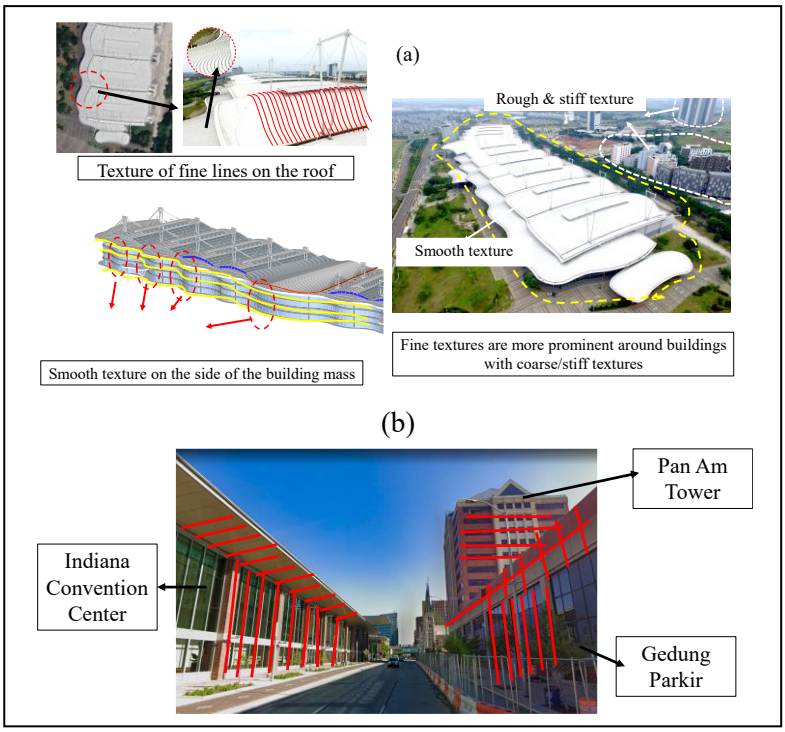

Figure 13 Comparison of the texture of the building to its environment: (a) ICE BSD Building (b) Indiana Convention Center Building, USA

***Source**: Various Sources* [22], [38] *and Personalized Analysis*

The colors and textures of the ICE BSD building are consistent with the Futuristic Architecture form because they stand out from the surrounding environment while maintaining a simple appearance. The colors and textures used also affect the clarity of the function of the convention building suitable with the function of the convention building compared to the use of unobtrusive colors on the exterior or the use of striking colors in the interior, and give the impression of Indonesian characteristics in some of its spaces, so it can said that the

colors and textures affect the function of the convention building in the social environment and cultural symbol.

Position and Orientation

Position is the location of a building in its environment, where the form can seen, and orientation is the position of the form against the field or point of the observer's view [1]. Based on the characteristics of the form of Futuristic Architecture, the aspect of orientation can be interpreted differently due to the form that may also interpreted differently, when viewed from various positions.

When When viewed from various positions of the ICE BSD building, as in Figure 14, the position of the building can show the overall shape of the building, and the dynamic shape is in the top view and bird's eye perspective. In the normal eye perspective, front view, and rear view, the dynamic form is also only partially visible due to the limited view of the human eye. Meanwhile, on the left and right sides of the building, the shape of the building is not clearly visible as shown by the yellow circle in Figure 14. Because of the visual differences seen in each position of the view and perspective, the shape of the building can be interpreted differently by each observer.

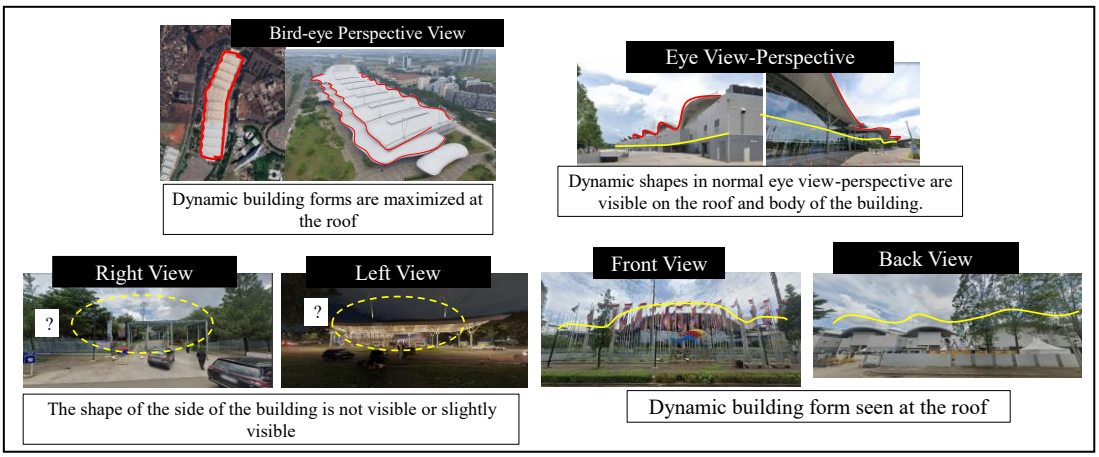

Figure 14 Visual of the ICE BSD building form seen from various positions

***Source**: maps.google.com* [39] *and Personalized Analysis*

Compared to the Los Cabos ICC building, which has a rectangular shape, Figure 15 shows that the shape of this building is readily seen from many positions and creates the same interpretation, namely forming a rectangle. Although the interpretation of the form in the geometric building of the Los Cabos building is more consistent than the interpretation of the dynamic form in the ICE BSD building, the Los Cabos building has a more diverse interpretation and creates ambiguity due to the similarity of the geometric form from various positions.

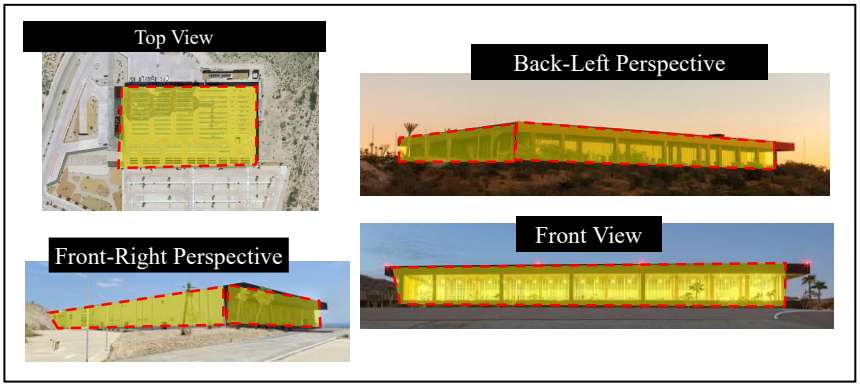

Figure 15 Visual of the ICE BSD building form seen from various positions

***Source**: Variours Sources*[24], [27] *and Personalized Analysis*

From the comparison of the two buildings, the various interpretations owned by the ICE BSD building can still be identified even though only partially so that the ICE BSD building can be said to be still quite suitable with the function of the convention building that must show clear access to the building rather than geometric

buildings which even show ambiguity due to the unity of interpretation on its form from various directions.

Because the building form can be interpreted differently, the orientation can also be interpreted differently. Interpretation itself is the essence of perception. Perception is a relationship or event obtained from the interpretation of a message [40], so the orientation analysis of the ICE BSD building is analyzed based on Gestalt theory, which is a theory that explains how humans recognize a shape or pattern in visual information and give meaning to it. Gestalt theory consists of six principles, namely: (1) **Proximity**, which is a way of seeing the proximity and is considered as a unit; (2) **Similarity**, is a method of determining the similarity of items and is considered a group. (3) **Continuity** refers to the continuity of a line, pattern, or contour as a unit. (4) **Focal Point**, which is a method of seeing an object that stands out from its surroundings and is said to draw attention. (5) **Symmetry** is a method of examining the balance of shapes on all sides, and symmetry is thought to be superior to asymmetrical shapes. (6) **Closure** is a simple conclusion based on what is in mind [41].

As seen in Figure 16, the form of the ICE BSD building on the right and left have a continuation of the pattern (a), and each segmentation of the form formed has similarities and close distances (b) so that it appears to be a unity and a group. In contrast, the shape in the middle (circled) is different from the shape around it, making it a focal point that attracts attention so that the perception of the location of the building orientation will be focused on where the focal point is located because it is based on the closure aspect of the Gestalt theory principle, namely the conclusion obtained based on what is in the mind and is simple.

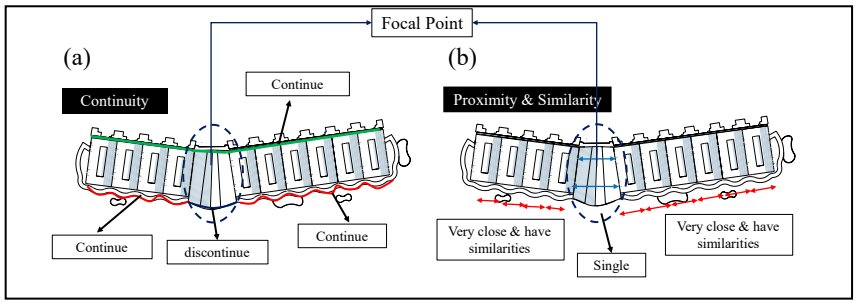

Figure 16 The focal point of the ICE BSD building form is based on Gestalt Theory.

***Source**: Personalized Analysis*

According to the explanation of the orientation location analysis with Gestalt theory, there are two perceptions of the orientation direction of the ICE BSD building, shown in Figure 17, which is perception 1 (Figure 17a) indicates that the orientation is on side A, and perception 2 (Figure 17b) indicates that the orientation is on side B. Both impressions are influenced by the focal point of the waveform section that is distinct from the other waves, as depicted in the blue circle, which gives the appearance of a focus.

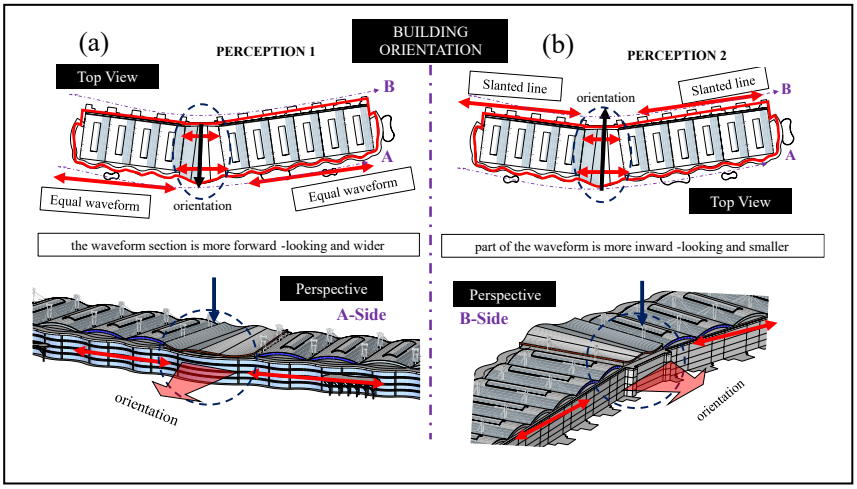

Figure 17 Perception of Building Orientation Direction: (a) Perception 1 and (b) Perception 2

***Source**: Personalized Analysis*

Both views influence the impression of circulation patterns, shown in Figure 18. Perception 1 (Figure 18a)

indicates that the building's achievement will enter from side A, and visitor circulation will be concentrated on that side, whereas perception 2 (Figure 18b) indicates that the building's achievement will enter from side B, and visitor circulation will spread to side A. The circulation pattern in perception 1 is clearer than the circulation pattern of the user group, demonstrating the clarity of the function boundaries between places compared.

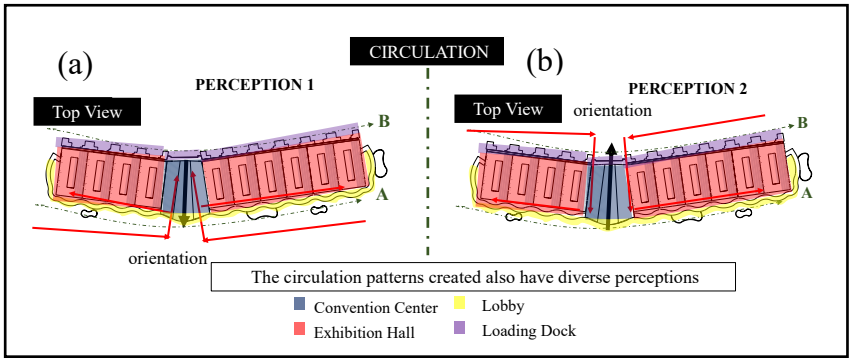

Figure 18 Perception of circulation pattern based on perception of orientation direction: (a) Perception 1 and (b) Perception 2

***Source**: Personalized Analysis*

Unlike the ICE BSD building which has a focal point in its dynamic form, geometric buildings such as the Los Cabos ICC building do not have a focal point as a reference for interpreting the location of the orientation of the building, as seen in Figure 19 where from the aspects of proximity, similarity, continuity and symmetry of the building form only has 1 group of shapes, namely rectangles, causing ambiguity in the direction of orientation so that visitors will find it more difficult to found the direction of building orientation.

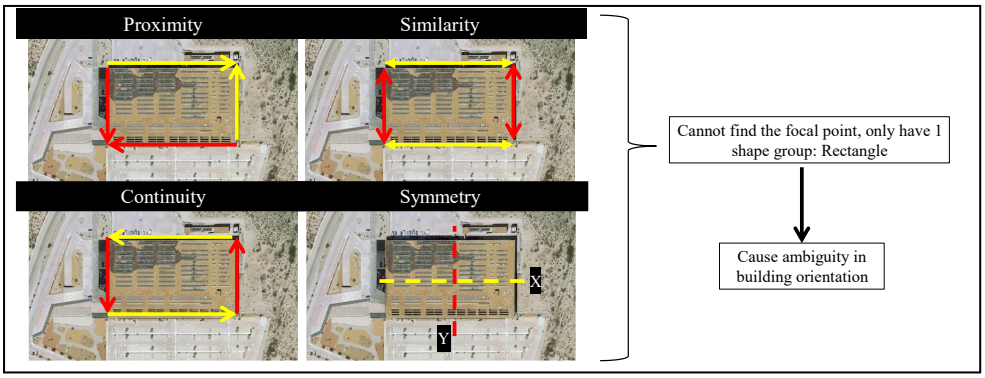

Figure 19 Identify the location of the orientation direction in the Los Cabos ICC building based on the focal point analyzed from Gestalt Theory.

***Source**: maps.google.com* [24] *and Personalized Analysis*

As a result of the different interpretations of the position and orientation aspects, the ICE BSD building has the characteristics of a Futuristic Architecture form. Its relationship with the function of the convention building is to affect the function of the convention building in the social environment in the form of differences in interpretation, and physical control in the form of circulation patterns. Although different interpretations are not suitable with Fred Lawson's theory that requires convention buildings to have clarity of direction, the ICE BSD building's different orientation interpretations can still be said to be suitable with the function of the convention building compared to buildings with geometric forms that also show ambiguity.

Visual Inertia

According to D.K Ching, visual inertia is the level of balance of a form against the earth's gravity and human line of sight [1], so in this analysis axes are made that describe the earth's gravity line (Z) and human line of sight (X and Y). In Figure 20 (a), it can be seen that both the axis in 2D and the axis in 3D, the ICE BSD building has an unstable level of balance (asymmetrical) due to the difference in dimensions on both sides of the building (Y), not using repetition of shapes (X), and the difference in mass load in both parts (Z) so that the ICE BSD building has an irregular shape. The instability of the building's visual inertia results in an

unstable circulation pattern, as shown in Figure 20 (b), where the achievement to the room on the left side of the building will be faster because of the shorter mass compared to the right side, which has a long mass, so the left room will most likely be the priority of the event organizer to facilitate the achievement of visitors to the event. Although the circulation pattern generated is unstable, it has a regular shape due to the ongoing pattern of instability.

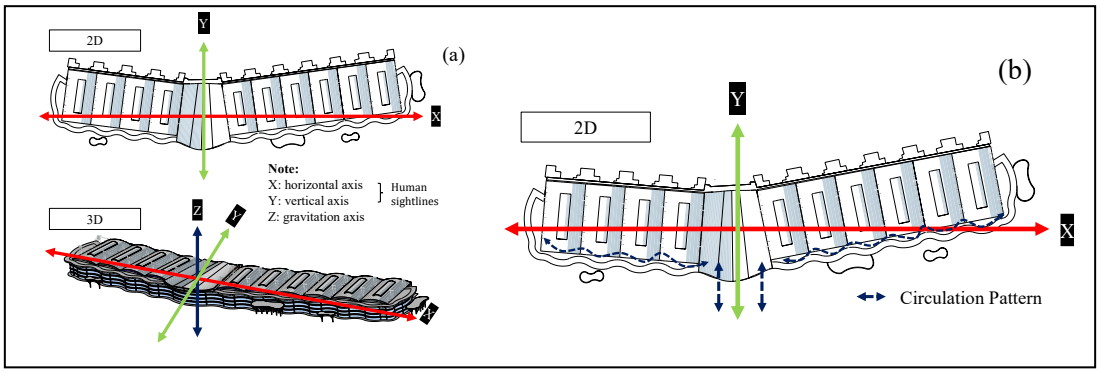

Figure 20 Identification of the visual inertia of the ICE BSD Building: (a) Placement of the Building on the three reference axes; (b) Circulation pattern to the reference axes.

***Source**: Personalized Analysis*

When looking at the Los Cabos building which has a geometric form, Figure 21b shows that the visual inertia of the geometric form is more balanced and symmetrical in various parts when viewed from the axes. As seen in Figure 21b, this balance and symmetry make the circulation patterns that are formed balanced and symmetrical in various parts and create more order and clarity of direction in the achievement to the spaces because of the linear shape that is perpendicular, not wavy or has a slope as in the ICE BSD building to create efficiency in the duration of achievement to the spaces in the building.

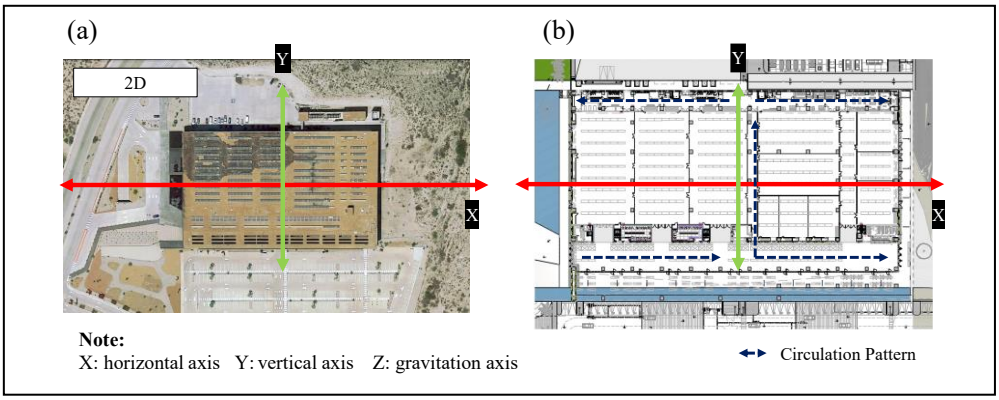

Figure 21 Identification of the visual inertia of the Los Cabos ICC Building: (a) Placement of the Building on the three reference axes; (b) Circulation pattern to the reference axes.

***Source**: Various sources* [24]-[25] *and Personalized Analysis*

From this explanation, the visual inertia aspect of the ICE BSD building is suitable with the characteristics of the Futuristic Architecture form, which has an unstable visual inertia. However, because the unstable circulation pattern still shows clarity of direction, it is suitable for the function of the convention building. That also shows that visual inertia affects the function of the convention building in physical control.

4. Conclusion

Based on the analysis that has been carried out from each aspect of the characteristics of the Futuristic Architecture form and comparison with other building examples associated with the function of the convention building, the following conclusions were obtained:

1. The dynamic form of the ICE BSD building is suitable with the characteristics of the architectural form that can affect the function of the convention building in physical control show the clarity of function

between spaces, and functionally in the form of space utilization can be maximized properly compared to geometric buildings that are less varied and use many columns so that the dynamic form shows suitability for the convention building function.

2. The varied dimensions (but constantly arranged) of the ICE BSD building can be said to be suitable with the Architectural form characteristic. The constancy created affects the function of the convention building in Physical Control in the form of clarity of the main function space of the building as a focal point, and Functionally in the form of flexibility in plan layout but can be made typically so that the varied dimensions show the suitability of the convention building function.

3. The ICE BSD building's striking colors and textures maintain a simplistic appearance consistent with the visual qualities of the Futuristic Architecture style. The simple impression of this structure influences its role in the Social Environment in the form of human psychological impact, which will focus on the activities since it is more striking than the room, and in Cultural Symbolization in the form of motifs utilized. As a result, dramatic colors and textures are more appropriate for the convention building function than less striking colors and textures.

4. When viewed from various positions, the shape and orientation of the ICE BSD building can be interpreted differently so that it is suitable to the characteristics of the Futuristic Architecture form. The different interpretations of the ICE BSD building can be said to be more in line with the function of the convention building compared to buildings with geometric forms and also show ambiguity due to the unity of their interpretations.

5. The ICE BSD building has an unstable visual inertia so it can be said to have an irregular shape that matches the characteristics of the Futuristic Architecture form. That affects the function of the convention building in Physical Control, namely the circulation pattern and the speed of achievement to its unstable spaces in both parts. However, the visual inertia instability of the ICE BSD building is less compatible with the function of a convention building than a building with a more stable geometric form.

Based on some of the preceding results, it is possible to conclude once more that the Indonesian Convention Exhibition (ICE) BSD building has a Futuristic Architecture form, as evidenced by its conformance with the visual qualities of the Futuristic Architecture form. When associated with the function of the convention building, the form of Futuristic Architecture has suitability and unsuitability with the function of the convention building, whereas the form of Architecture suitable for the convention building's function in terms of form, dimensions, color, texture, position and orientation aspect. While unsuitable with the convention building's function in terms of visual inertia aspect.

However, as Futuristic Architecture is impermanent due to its principles based on the future, conclusions regarding the relationship between Futuristic Architecture forms and conventional building functions may evolve in the future, and not all parties may agree with these conclusions. That causes this research to be further developed with the support of quantitative and comparative analysis on each aspect studied with other convention buildings so that the conclusion of this research, which shows the suitability or incompatibility of futuristic architectural forms to the function of convention buildings, has a strength and more objective statement.

From the findings obtained from this research, it appears that most of the aspects of the characteristics of the Futuristic Architecture form at ICE BSD towards the function of the convention building might be one of the references for designing convention buildings in the future, especially the ICE BSD building which has become one of the icons in the surrounding area. Even the findings in this research may be applied or experimented with in other building functions.

5. Acknowledgement

This paper was created independently by the authors and was not funded by any parties. The views expressed are those of the author, and the institutions or organizations mentioned in this paper do not necessarily reflect those institutions or organizations.

6. Conflict of Interest

The authors whose names are listed immediately below certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

References

[1] R. I. Surasetja, "FUNGSI, RUANG, BENTUK DAN EKSPRESI DALAM ARSITEKTUR," Bandung, 2007.

[2] G. Setiyoko, "ASPEK-ASPEK PERANCANGAN RUMAH TINGGAL," *Teodolita*, vol. 8, no. 1, pp. 45–52, 2007.

[3] F. Asim and V. Shree, "A Century of Futurist Architecture: From Theory to Reality," *Journal of Civil Engineering and Environmental Technology*, vol. 5, no. 6, pp. 338–343, Sep. 2018, doi: 10.20944/preprints201812.0322.v1.

[4] A. A. Noor, "Modul 1: Pengertian MICE (Meeting Incentive Conference Exhibition)," in *Manajemen MICE*, 1st ed., in 1. , Tangerang Selatan: Perpustakaan Digital Universitas Terbuka, 2020, pp. 1.1-1.33.

[5] M. R. Fadli, "Memahami desain metode penelitian kualitatif," *Humanika, Kajian Ilmiah Mata Kuliah Umum*, vol. 21, no. 1, pp. 33–54, 2021, doi: 10.21831/hum.v21i1.38075.

[6] Kaharuddin, "Equilibrium : Jurnal Pendidikan Kualitatif : Ciri dan Karakter Sebagai Metodologi," vol. IX, no. 1, pp. 1–8, 2021, [Online]. Available: http://journal.unismuh.ac.id/index.php/equilibrium

[7] Rusandi and M. Rusli, "Merancang Penelitian Kualitatif Dasar/Deskriptif dan Studi Kasus," *Al-Ubudiyah: Jurnal Pendidikan dan Studi Islam (AUJPSI)*, pp. 1–13, 2021, doi: https://doi.org/10.55623/au.v2i1.18.

[8] M. Izhar Suryadharma, H. Prabowo, and S. Handjajanti, "Penerapan Arsitektur Kontekstual pada Bangunan Masjid di Kudus, Jawa Tengah Application of Contextual Architecture in Mosque Buildings in Kudus, Central Java," *JAUR*, vol. 5, no. 2, pp. 96–102, Apr. 2022, [Online]. Available: http://ojs.uma.ac.id/index.php/jaur

[9] Z. Abdussamad, *Metode Penelitian Kualitatif*, I. Syakir Media Press, 2021. Accessed: Dec. 22, 2023. [Online]. Available: https://repository.ung.ac.id/get/karyailmiah/8793/Buku-Metode-Penelitian-Kualitatif.pdf

[10] F. Faturrahman and W. Aqli, "Kajian Konsep Arsitektur Futuristik Pada Bangunan Konvensi: Setia City Convention Centre," *Jurnal Linears*, vol. 4, no. 1, pp. 29–35, Jun. 2021, doi: 10.26618/j-linears.v4i1.5192.

[11] Maning, "Speed and Madness: An Interpretation of architectural Form based on Futuristic theory," *SHS Web of Conferences*, vol. 158, p. 01017, 2023, doi: 10.1051/shsconf/202315801017.

[12] A. Praefcke, "Kunsthaus Graz, gesehen vom Schlossberg," Wikimedia Commons. Accessed: Nov. 06, 2023. [Online]. Available: https://commons.wikimedia.org/wiki/File:Graz_Kunsthaus_vom_Schlossberg.jpg

[13] R. Bianchini, "Kunsthaus Graz – The 'Friendly Alien' by Peter Cook & Colin Fournier," Inexhibit. Accessed: Nov. 06, 2023. [Online]. Available: https://www.inexhibit.com/mymuseum/kunsthaus-graz/

[14] Ninaras, "MahaNakhon, the tallest skyscraper in Bangkok. Designed by German architect Ole Scheeren.," Wikimedia Commons. Accessed: Nov. 06, 2023. [Online]. Available: https://commons.wikimedia.org/wiki/File:Maha_Nakhon_tower_Bangkok.jpg

[15] K. Cilento, "MahaNakhon / Ole Scheeren, OMA," ArchDaily. Accessed: Nov. 06, 2023. [Online]. Available: https://www.archdaily.com/30025/mahanakhon-ole-scheeren-oma?ad_medium=gallery

[16] K. Sahar and W. Aqli, "KAJIAN ARSITEKTUR FUTURISTIK PADA BANGUNAN PENDIDIKAN," *Nature: National Academic Journal of Architecture*, vol. 7, no. 2, p. 263, Dec. 2020, doi: 10.24252/nature.v7i2a10.

[17] A. Ashadi, "1ST ICECREAM-003 Meaning of Function in Architecture: Interpret Insider and Outsider Function," 2021.

[18] Akbar, "BORNEO CONVENTION AND EXHIBITION CENTER," *Jurnal Online Mahasiswa Arsitektur Universitas Tanjungpura*, vol. 6, no. 1, pp. 201–212, Mar. 2018.

[19] Anonymous, "Graduation Info," baa.mercubuana.ac.id. Accessed: Dec. 03, 2023. [Online]. Available: https://baa.mercubuana.ac.id/en/march-18-2020/
[20] V. G. P. J. Paryoko, "STRUKTUR DAN KONSTRUKSI SEBAGAI GAGASAN EKSPLORASI BENTUK BANGUNAN DALAM STUDIO PERANCANGAN ARSITEKTUR," *Sinektika Jurnal Arsitektur*, vol. 19, no. 1, pp. 48–58, Jan. 2022.
[21] S. F. Handoko and A. M. Nugroho, "Stadion Sepak Bola di Kabupaten Tangerang Dengan Struktur Tegangan Membran," *Jurnal Mahasiswa Departemen Arsitektur*, vol. 6, no. 4, Jan. 2019.
[22] Anonymous, "Indonesia Convention Exhibition (ICE)," lysaght2.iweb.my. Accessed: Nov. 06, 2023. [Online]. Available: http://lysaght2.iweb.my/id/en/case_studies/indonesia-convention-exhibition-ice/
[23] Anonymous, "Exhibition Hall," ice-indonesia.com. Accessed: Nov. 06, 2023. [Online]. Available: https://ice-indonesia.com/en/planevent/exhibition_hall
[24] Anonymous, "ICC Los Cabos-Maps," maps.google.com. Accessed: Jan. 25, 2024. [Online]. Available: https://maps.app.goo.gl/9fJ9XPzWLCc1L2q77
[25] Anonymous, "International Convention Center in Los Cabos," archiweb.cz. Accessed: Jan. 25, 2024. [Online]. Available: https://www.archiweb.cz/en/b/mezinarodni-kongresove-centrum-v-los-cabos-g20-international-convention-center
[26] A. Ramos, "ICC Los Cabos-Event," maps.google.com. Accessed: Jan. 25, 2024. [Online]. Available: https://maps.app.goo.gl/z8pUspCPQumbrxtA6
[27] Anonymous, "Los Cabos International Convention Center / FR-EE / Fernando Romero Enterprise," archdaily.com. Accessed: Jan. 25, 2024. [Online]. Available: https://www.archdaily.com/485138/los-cabos-international-convention-center-fr-ee-fernando-romero-enterprise?ad_medium=gallery
[28] Anonymous, "Jakarta Convention Center," maps.google.com. Accessed: Jan. 25, 2024. [Online]. Available: https://maps.app.goo.gl/HjJA5tBWajrjofR26
[29] D. S. Pratama, "Gedung Jcc Senayan," homecare24.id. Accessed: Jan. 25, 2024. [Online]. Available: https://homecare24.id/gedung-jcc-senayan/
[30] Anonymous, "Nusantara Hall," ice-indonesia.com. Accessed: Nov. 06, 2023. [Online]. Available: https://ice-indonesia.com/en/planevent/nusantara_hall
[31] Anonymous, "Meeting Room," ice-indonesia.com. Accessed: Nov. 06, 2023. [Online]. Available: https://ice-indonesia.com/en/planevent/meeting_room
[32] Anonymous, "IISIA Business Forum 2023," ice-indonesia.com. Accessed: Dec. 03, 2023. [Online]. Available: https://ice-indonesia.com/en/gallery/iisia-business-forum-2023
[33] Anonymous, "Pesta Warga Bapak2ID," ice-indonesia.com. Accessed: Dec. 03, 2023. [Online]. Available: https://ice-indonesia.com/en/gallery/pesta-warga-bapak2id
[34] Anonymous, "Bridestory Market 2023," ice-indonesia.com. Accessed: Dec. 03, 2023. [Online]. Available: https://ice-indonesia.com/en/gallery/bridestory-market-2023
[35] Anonymous, "GIIAS 2023," ice-indonesia.com. Accessed: Dec. 03, 2023. [Online]. Available: https://ice-indonesia.com/en/gallery/giias-2023
[36] Anonymous, "Level 1 Floor Plan-PLACE RIOPELLE HALL AND SHOPPING PROMENADE," congresmtl.com. Accessed: Jan. 25, 2024. [Online]. Available: https://congresmtl.com/en/event-planning/virtual-tour/
[37] Jiaqian AirplaneFan, "Montreal Convention Center," commons.wikimedia.org. Accessed: Jan. 25, 2024. [Online]. Available: https://commons.wikimedia.org/wiki/File:Montreal_Convention_Center_-_panoramio.jpg
[38] Anonymous, "Indiana Convention Center," maps.google.com. Accessed: Jan. 25, 2024. [Online]. Available: https://maps.app.goo.gl/ZWDaPpMFifPcouv29
[39] Anonymous, "Indonesia Convention Exhibition (ICE) BSD City," https://maps.google.com/. Accessed: Nov. 06, 2023. [Online]. Available: https://maps.app.goo.gl/DwiS5DpbqdAfRVLK7
[40] H. S. Arifin, I. Fuady, and E. Kuswarno, "ANALISIS FAKTOR YANG MEMPENGARUHI PERSEPSI MAHASISWA UNTIRTA TERHADAP KEBERADAAN PERDA SYARIAH DI KOTA SERANG," 2017.
[41] F. S. Mubarok, "Penerapan Prinsip Gestalt Dalam Desain Visual Untuk Meningkatkan Memori Dan Pemahaman Pesan," *Jurnal Ilmiah Komunikasi Makna*, vol. 11, no. 2, Aug. 2023, doi: 10.30659/jikm.v11i2.33002.