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Creating atmosphere in hotel interior space with material roles: *Bata Pejaten*

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Abstract. As a major tourist destination in Indonesia, Bali possesses hospitality industries that are competing to present the best experience for guests. One of the hotels, *Katamama*, offers a specific spatial experience through the use of *Bata Pejaten*, handmade bricks traditionally made from mixtures of clay and *paras* sand—a fine stone powder of volcanic material sourced locally in Bali. Meticulous selection of *Bata Pejaten* applied on the 5-star quality hotel became its own uniqueness as these bricks are generally seen as a simple inexpensive material and mainly used for temples construction. As an interior space, it should be recognized not only related to the usability to meet human needs, but also the emotional effect of giving experience. Those spatial experiences are the atmosphere of space that exists between human and their built environment. It is understood through the senses of human, creating an impression and significant meaning to the person. In this case, the material becomes one of the important aspects of spatial atmosphere production. For *Bata Pejaten*, it is their craftsmanship, composition, and organic transformation. The paper aims to explore how *Bata Pejaten* and its properties and qualities generate atmosphere of space. This paper presents a case study analysis on interior spaces characterized by its specific material and authentic substances from volcanic eruptions as the core investigation. This paper demonstrates a design approach from the material perspective. In particular, this study introduces the concept of using materials attentively in creating spatial atmosphere characterized by modest material yet rich in its values.

1. Background

Hospitality industries are dealing to provide best experiences for guests. *Katamama Hotel*, located at the tropical landscape, Bali, Indonesia, is presented as a case study that shows the use of *Bata Pejaten*, a handmade brick traditionally made from mixtures of clay and *paras* sand—a fine stone powder of volcanic material sourced locally in Bali. As a boutique 5-star hotel, *Katamama* used almost 1.500.000 pieces bricks as the major material and this became its own uniqueness as these bricks are generally seen as a simple inexpensive material. *Bata Pejaten* is presented truthfully as the original material and applied continuously from the exterior to the interior space of the hotel. As natural materials, it has shown its compositions through the authentic substances originated from volcanic eruptions and then occasioned the organic transformation of material. Those bricks affect intangible qualities of design not only by upgrading its hotel design value but also creating distinctive experience and wellbeing aspect of the guests.

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The material becomes one of the important aspects to produce spatial qualities i.e. atmosphere of space. The atmosphere of space is a quality that exists between human and their built environment understood through the senses, creating an impression and significant meaning to the person [1,2]. The impression is created as the psychological effects through perceptivity of space. It reminds that the interior space should be recognized to be related for two functionalities: as its usability to meet human needs and also its emotional effect of giving experience. Human body becomes a fundamental instrument that captured those experience influenced by architectural qualities—atmosphere—of a temporary environment [2, 3].

The atmosphere of space occurred between objects existed in a place with human as subjects in imaginative and abstract conditions [4, 5]. Although these sensations are intangible qualities, they are produced by the existence of tangible objects in the terrestrial environment. Therefore, the aesthetic of atmosphere in its approach obtained through two viewpoints, *perceptions aesthetic* and *production aesthetic* [4]. Production aesthetic of the atmosphere refers to the approach from the viewpoint of the object. In practice, the atmosphere can be formed through the elements or objects to become a wholeness of the spatial product; material as an object. This also related to [3] statement that the atmosphere is the encounter of the emotional impression and the quality of the space reproduced by the integration of objective material, the proportion of space, the aging material, the connection of material, as well as connections with places and buildings, rhythm, light, etc. It can be understood that the material, its integration and aging phenomenon, the encounter between the material and its existence in the environment, also with the natural elements—in this case, related to light—will affect the formation of the atmosphere. Therefore, creating atmosphere can be designed through the material based on a thorough understanding the material presence as the object of interior space by its properties and qualities.

The physical properties of material—the colours, textures, shapes, and densities—are seen on the material's surface. Those physical properties may change due to its presence in the terrestrial environment, so it is necessary to understand what is contained and manifested in the material resulted from its interaction with the environment. Its properties are visually measurable and experienced with other senses based on reality while its presence also impressed its character and provide sensual effects as senses and physical pleasure. Those are known as the qualities of materials, which give a psychological effect on the subject [3]. According to the physical properties of a material, the deep understanding of physical properties occurs objectively through three aspects, the *surfaces*, and *substances* of material, within a *medium* relating to the surrounding environment and terrestrial phenomena [6].

The *surface* of a material is the place where encounter happened between its material substances with the immaterial medium in the world [6]. Related to the *medium*, according to [7], material properties—surfaces and substances—then become uncertain attributes of a material; *processual* and *relational*. Therefore, the understanding and assessment of material properties occurred through 3 aspects, including surfaces, substances, as well as the medium which surrounds it in the environment.

From these findings, researchers have attempted to identify atmosphere objectively from the material not only as a material but furthermore, it is the composition of the material itself and/or with other elements; its settings. Those settings to form architecture cannot be separated from the environment of its existence. Then, as a built environment, material connection with the surrounding environment and context needs to be understood comprehensively in the design process.

The existence of built environment cannot be separated by it surrounding. The atmosphere of space must be part of its environment because otherwise, it will ignore the will of the atmosphere [2, 8, 9]. The atmosphere can also be formed and perceived in the object and its relation to the context in which the object is found. In the end, in designing the atmosphere of space, it is not only about organizing the architectural elements but also considering the relationship within the context of the building. This paper presents the identification of *bata pejaten* as the object, its form and space as a spatial element, and its relation to the terrestrial environment to enhance spatial atmosphere in hospitality interior space design context. This paper argues that these experienced qualities can be provided through the

use of natural material precisely and allowing connection of material, built environment space, and the surrounding itself, to the natural world.

The method described in the following chapter combines the identification of *bata pejaten* as a natural material, its material arranged as spatial elements, building features, and the built environment as the main evaluation.

2. Methodology

A case study is presented that shows the used of *bata pejaten* as the major material of a 5-star hotel building. First, the objective of the material properties is reviewed through physical condition and collected data by images and comprising photographs. Second, the used of the material and its configuration as formed spatial elements. On the final steps, the observation of the interior space design qualities focused on the applied material on the hotel typology complements previous data as supporting aspect to be considered in built environment space.

2.1. Material Properties

Bata Pejaten as a handmade brick lasts with its manual production prioritizes expertise and its craftsmanship by hand. Its material substances—mixtures of clay with *paras* sand and coated with palm oil—due to the origin of the sand from the volcanic eruptions shown a unique response to nature. Its original colour is terracotta, brownish-red colour, dominated by clay. The results by the young environmental researcher showed that volcanic ash contains major elements of aluminium, silica, potassium, and iron. As the main substance, iron enables the process of oxidation and corrosion of the bricks. Therefore, it affected changes of colours of the material—brownish-red colour gradually turned to black.

Its craftsmanship of material production also affects the character of the material. *Bata Pejaten* possessed 4 different surfaces, ranged from the finest surfaces to rough surfaces (figure 1). As home industry product, not all produced bricks are perfectly neat in their block shapes and its surfaces.

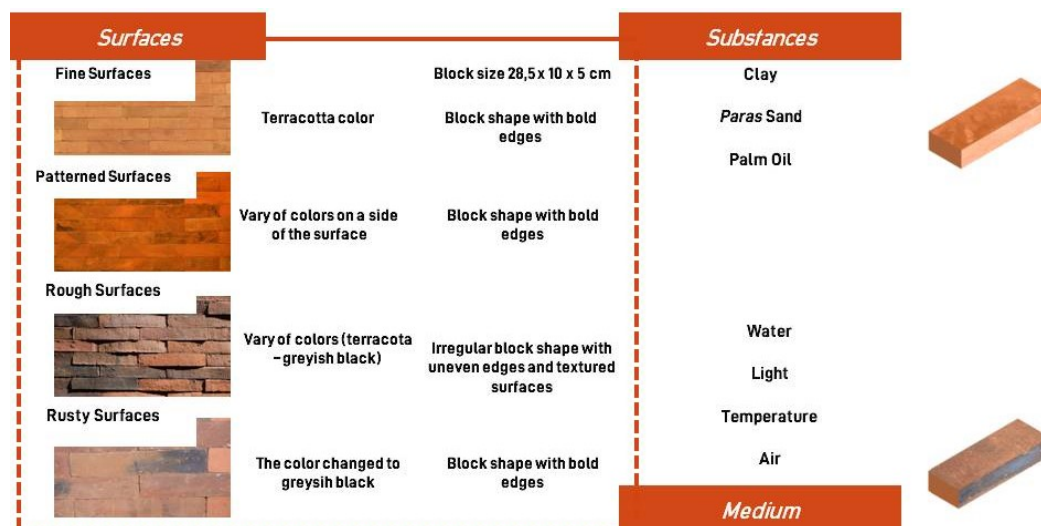


Figure 1. Bata Pejaten 4 different surfaces.

Other than colour change due to corrosion phenomena, inconstant shapes and surfaces, *bata pejaten* also showed varieties of colour due to combustion process on production phase. Those phases resulted in patterned surfaces on one side of the material surfaces. This is another indication that the combustion phase can also affect the colour density of the clay content caused by the heat intensity, direct exposure to the heat source, and the length of burning time.

2.2. Material Qualities

Located in the tropics with high intensity of rainfall, bata pejaten showed its interaction with medium and leads change of physical properties and also affects material qualities. The terracotta colour of brick that created warm atmosphere then affected the perceived quality of space. The presence of bricks in a humid area can 'relieve' the warmth of the brick through the change colour to greyish black, giving a cool colour effect in turn. Changes in the appearance of brick also responded to the variable time of sunlight exposure, which revealed the dynamic qualities that are constantly changing over time.

2.3. Material Configurations

There were 2 techniques found to construct *bata pejaten* in the hotel, (1) ideal brickwork construction; (2) latticework construction. These materials are acclaimed as the final surfaces or widely known as exposed walls. As spatial elements, *bata pejaten* is applied for building features such as wall covering, flooring, and also column of the buildings. For the first techniques, those arrangements become distinctive, as the brick remains very tight without being separated by other materials.

For the second technique, it turned the wall 'breathable', created a connection directly to nature and became a semi-outdoor space. Thus, every area of the hotel with different physical properties and material qualities as well as material configurations created an atmosphere with diverse and dynamic spatial quality.

3. Discussion and Analysis of The Results

In the case study of Katamama Hotel, *bata pejaten* is used from the facade to the interior space, from the lobby through the guest room walls. Chosen areas to be discussed are including the lobby, the restaurant, and the corridor as the access to guest rooms (Table 1). Those selected areas were determined as they are the first areas experienced by guests, which play a major role in creating impressions to guests.

From the very first area, the lobby, variations of brick colours—brownish-red to greyish-black—applied irregularly to the lobby area. The colour composition was not completed after arranged by variations of colours, but it is possible to continue transforming the brick's ability against the corrosion process. Strong tropical climate and hot temperature due to building coastal locations are dimed by the presence of bricks with blackish colour and the natural process of blackening of bricks. Extreme weather along with major sun exposure throughout the day led a new characteristic related to its interaction with nature. It is suggested that the use of natural material could express environmental processes and temporality of nature, such as aging and the passage of time [8].


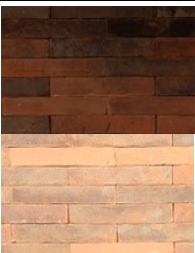




The second area continued to the restaurant, finest physical properties of brick's surface found in the walls and columns. The use of patterned surfaces combined with strong terracotta colour created modern ambiance and unique atmosphere.

The last area's examination is done throughout the corridor, before reached the lift to access the guest rooms, textured bricks and its irregular shapes applied to this area's walls. Hence, assembly of those properties as the building features affected its spatial qualities. Those contoured uneven walls created a particular sense of depth and intimate atmosphere.

The corridor of guest room's wall showed a different configuration of bricks. The brick arrangement with applied latticework constructions soothes the experience of the intimate atmosphere before. The contrast atmosphere created by the pattern of sun rays which coming through the latticed wall of bricks. That semi-outdoor corridor enhanced human innate existence of its environment: Bali with the tropical climate, strong breezes, and warm temperature of the coast.

The latticework constructions of bricks also affected how the light came into the interior space. The sun rays penetrate through the wall vary in patterns overtime. This phenomenon also brings one's mind to the memories and gives similar effects of the light rays in the morning through the forest. The guest gets a meaningful experience of space as reminiscent of the temporal nature.

Table 1. The used of *Bata Pejaten*

Area	Material			The Atmosphere of Space	Theory
	Physical Properties	Qualities	Configuration		
Lobby	 <p>The ideal shape of brick with smooth and matte surfaces, the gradation of colors at random on a face.</p>	 <p>the color contrast created on the brick which exposed directly to sun rays all day compared to the shaded brick, so that the visual perception of the brick turn out to be calm and relaxing.</p>	 <p>The brickwork configuration created a tight arrangement applied thoroughly as wall and flooring (with the herringbone pattern), the material composition of brick on the wall and wood on the ceiling.</p>	 <p>The consistency of brick application (walls and floors), the material composition (with wood), and manipulating the scale (from high and massive to adapt human scale) created an intimate and relaxing atmosphere for the guest.</p>	The material arrangement of human size, scale, and proportion; Material and the context..
Res- taurant	 <p>The shape of brick with smooth and matte surfaces, and arranged regularly with patterned bricks (diagonal lines with color gradations).</p>	<p>The dominance of the original brick color (red terracotta) with smooth and matte surface creates a warm effect both visually and haptically sensed.</p>	<p>The brickwork configuration in a regularity, combined with patterned bricks, tightly applied on walls and column.</p>	 <p>Arrangement of bricks with regularity, material composition (with wood on the ceiling, terrazzo on the floor) creates a more modern, warm, and attractive space.</p>	Material arrangement of colors and textures; Material composition.

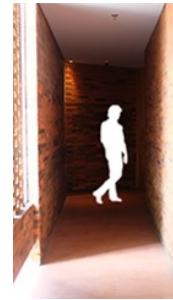
Corridor
or
(Lift)



The uneven shape of bricks with rough texture, variety of colors dominated with brownish-red or grayish-black bricks.

The imprecise texture and shape of the brick creates depth effect and stimulates a strong haptic sensation.

The brickwork configuration—without mortar—due to the characteristics of the imperfect brick (the block shape is not precise), the application of those brick create contours on a wall.



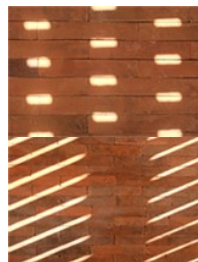
The arrangement of bricks that create contoured walls, the close and narrow distance between walls, and the intensity of light creates a mysterious and intense atmosphere.

The material arrangement of colors and textures; The material arrangement of human size, scale, and proportion.

Corridor
or
(Guest-room)



The dominance of precise shape of the brick with smooth and matte surfaces, the gradation of colors at random on a face.



The arranged bricks in the outer areas make a direct contact with the environment thus enhancing the warm temperature' effect of the brick.



The latticework of bricks applied for the outer wall element constructs the semi-outdoor corridor space, the material composition of bricks on the walls and columns with *jogja* tiles (terracotta colors) on the flooring.



The contrast ambience of the space compared to the previous space (corridor in front of the lift) presents a natural and calm atmosphere of the space, blends well with the tropical climate atmosphere of the environment, creating a unified tropical experience.

Material settings to the time, the *medium*; and the context.

Based on case study analysis, *bata pejaten* is capable to create spatial qualities through its physical properties by its surfaces, changes due to the interaction between its substances with the medium, material qualities, and material configurations. In more details:

- *Bata Pejaten* exposed different physical properties and qualities, showed the range of decolouration, textures, and surfaces as an active living material responds to its natural phenomenon.

- As a natural material, *bata pejaten* is able to determine the atmosphere with strong linkages to the surrounding environment
- *Bata pejaten* as a material is able to perform its responses as interaction to nature by its fading colour due to exposure of sunlight, warm to cool effect regarding colour warmth due to direct contact with air and water as the medium, and its changing colour due to corrosion process.
- *Bata pejaten* as applied material for spatial elements
- As a built environment typed such as hotel, the use of natural material created a distinctive experience and provided a good environment for the wellbeing of guests.
- *Bata pejaten* as natural material showed its connection to nature, qualified to improve comfort, tranquillity, and fulfilled hotel function.

4. Conclusion

Through the use of *bata pejaten*—handmade and traditional local brick—fairly and consistently as the main material, physical properties, qualities, and also its configurations able to created authentic space atmosphere in hotel interior space. The impression of the hotel became unique and luxurious in a different perspective because of its craftsmanship in the use of the material as well as in the design process.

In this case study analysis on the Katamama Hotel building, the configuration of material in architecture as a built environment presented the material configuration into spatial elements and its relation with the terrestrial environment. This suggests that those rules created a strong atmosphere by the use of natural materials as well as reactions towards and close relationships with nature.

Its applications gave benefits as lead comfort, tranquillity, and created a distinct sense of place. Those successful material based designs applied to the hotel typology lead the hotel as one of the top 5-star boutique hotels with numerous world awards and guarantees. Thus, the suggestion that I can give is the approach through material perspective requires our understanding to the material content, its interaction with the medium in the environment, and the effect on the surfaces and appearances of the material. Accordingly, having a deep understanding on the material, considering its configuration as a spatial element and referring to the terrestrial environment, the atmosphere of space as an aesthetic production can be created through the aesthetic of the material.

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