Co-Working Space with Biophilic Design Approach in Lot.6
SCBD, South Jakarta

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ABSTRACT
The millennial generation is much influenced by the rapid development of technology. The millennial generation grows in the digital age, so that digital technology and systems become inseparable aspects of daily life (digitally native). Technology has influenced the behaviour of the millennial generation, start from socializing, even to productivity of work. Changes in the behaviour of millennial in this technological era have pushed architecture to create a new place with a different type of architecture, known as the third place. The new design makes millennial employees feel relaxed so they can work more productively, a new place that puts forward the principles of informal and open architecture. In this study informal and open architecture have meaning, millennial do not always have to work in space, but in an open or semi-open environment. This new place should have a strategic location, easily accessible, close to shopping malls, workplaces, sports, being in an open space because basically humans have the natural nature to connect with nature, and this goal is obtained through design with a biophilic design approach.

Keywords: Biophilic, co-working, millennial, shareable space, third place, working.

1. Introduction
This research aims to create a new co-working space design that is more open and integrated with nature and embedded with digital native [1]. Planning with a biophilic design approach also aims to improve physical and psychological health that can increase work productivity. The application of the Internet of things strategy to the right biophilic design will shape the new space needed, that does not yet exist in the current co-working space. This research is expected to create a new co-working space design that is suitable with the behavior and characteristics of the millennial generation [2].

The focus of the problem is designing a new co-working space for the millennial generation so that it can accommodate millennial to discuss work as well as a means of socializing to do individual or group activities, such as seeking entertainment, exchanging information and knowledge. The focus of the problem in designing is also to maximize closed space but give the impression of being one with nature.

The discussion only focuses on the phenomenon of co-working space in the city of Jakarta where office rentals is expensive but locations are crucial for start-up companies [3]. Location restrictions are found in the South Jakarta area, which is the SCBD area. The application of architecture with technology to facilities and infrastructure

Of co-working space and to the activities of users in it, this discussion is not included in the operational costs of maintaining co-working space.

2. Theory and Method
2.1. Theory
The theory that used in this research is; 1) Biophilic design [4], design theory consisting of 6 design elements including 14 biophilic design attributes; 2) Charles Jenks hybrid architecture theory [5] as one of the design methods that emerged in the postmodern era, the design concept by combining, or mixing two or more different types of architectural elements so that the possibility of a new thing is formed; 3) Third place theory according to Ray Oldenburg [6]. The creation of “third place” is driven by people's lifestyles, social factors, the physical environment, a place for socializing millennial to do various activities especially those related to work; 4) Co-working theory according to Foertsch [7], office (kantoor) which means administration or bureaucracy which began to shift from its meaning related to work space into a place of sharing/cooperation (co-working).
2.2. Method
The research method used is a qualitative methodology [8] with a plural case study approach because case studies are more than one case. Done by collecting data, interviewing, learning theories that support. The design method used by implementing co-working space design in order to improve the quality of life and work productivity of the current millennial generation, using the biophilic design concept contained in *The Practice of Biophilic Design* [9]. Hybrid Architecture design methods are also used to combine functions and cross the function of activities in co-working space at a certain time, combining the urban spatial patterns or the morphology of Jakarta's organic city forming a design pattern, which is obtained from the hybrid concept stage, as well as holding the existing guidelines in the design method, *The Design Methods* [10].

3. Results and Discussion
3.1. Result Points That Become indicators in Planning
Based on the theories that used in the co-working space design method, previous research based on books, guidelines, regulations and even interviews with co-working space business actors. Points that will be used as indicators in planning are as follows;

1. The eight characters forming third place are: 1) The location of this new co-working space is in accordance with the characteristics of the Oldenburg third place, which is a neutral location (a non-binding place, users can come and go); 2) Non-status levelers (places that are not concerned with the status of individuals in a society); 3) A place to socialize; 4) Infrastructure that has been integrated with TOD (Transit Oriented Development) to facilitate accessibility and accommodation; 5) Have regular visitors; 6) The characteristics of the place are not luxurious; 7) Relaxed mood ambience (location is still beautiful and surrounded by green spaces); 8) Location far from home [11].

![Figure 1. Maps of Selected Area Lot 6 SCBD, Kebayoran Baru, South Jakarta](image1)

2. The hybrid concept is one of the design methods in an architectural discipline that emerged in the Post Modern era [5]. Etymologically, hybrid is a combination of several different aspects. In planning this design the hybrid is taken from the morphology patterns of Jakarta's organic city. With the Jakarta city pattern as a whole in the form of an organic city pattern, the morphology of the organic city is seen from 3 elements; 1) Street patterns/ street out; 2) Building types (architectural style of buildings & design); 3) Land use regulations (land use).

![Figure 2. Illustration of the Hybrid Concept](image2)
3. Six design elements and 14 attributes of biophilic used as a comparison of three case studies, We Work Revenue tower SCBD, Go Work Pacific Place, and Pasona Tokyo Headquarters Japan. These biophilic design elements and attributes will be indicators of the design of a new co-working space design in Lot.6, SCBD.

Comparison based on 6 elements biophilic design R. Kellert

- We Work Revenue Tower *co-working space*
- Go Work Pacific Place *co-working space*
- Pasona Tokyo Headquarters Building, Japan

**Table 1.** Comparative table based on 6 elements biophilic design R. Kellert

| ENVIRONMENTAL FEATURES | NATURAL SHAPES & FORMS | NAURAL PATTERNS & PROCESSES |
|------------------------|------------------------|-----------------------------|
| Calor                  | Botanical and animal motifs | Sensory variability |
| Water                  | Tree & columnar supports | Information richness |
| Air                    | Motif Kewam             | Age, change |
| Sunlight               | Shells & spirals        | Growth and efflorescence |
| Plants                 | Egg, oval and tubular forms | Central focal point |
| Animals                | Arches, vaults and domes | Patterned wholes |
| Nature materials       | Shapes resisting straight lines | Boundary spaces |
| View dan Pemandangan   | Simulation of nature features | Transitional spaces |
| Views and vistas       | Biomorphy               | Linked series & chain |
| Façade greening        | Geomorphology           | Integration of parts to whole |
| Habitats dan Ecosystems | Biomimicry              | Complementary contrasts |
| Fire                   |                        | Dynamic balance |

| ENVOLED HUMAN-NATURE RELATIONSHIP | PLACE-BASED RELATIONSHIP | LIGHT & SPACE |
|-----------------------------------|--------------------------|---------------|
| Prospect and refuge               | Historic connection to place | Natural lights and shadow |
| Order and complexity              | Geographical connection | Filtered & diffused light |
| Curiosity                         | Ecological connection to place | Reflected light |
| Change and metamorphosis          | Cultural connection      | Light pools |
| Security and protection           | Indigenous materials     | Warm light   |
| enticement                        | Ecology                  | Spaciousness |
| Attraction and beauty             | Oriented landscape       | Light as shape and form |
| Exploration and discovery         | Integration features build form | Space as shape and form |
| Information and cognition         | Avoiding placelessness   | Spatial variability & harmony |
| Fear and awe                      | Spirit of place           | Inside-outside spaces |
| Spirituality                      | Landscape orientation    |               |
| Mastery and control               |                          |               |
3.2. **Result in Planning**

The design is explained indirectly with existing data, pictures of co-working space with a biophilic design approach in the form of; 1) Design concepts; 2) Zoning; 3) Mass composition; 4) Space program and in the form of; 5) Floor plans and views.

![Figure 4. Schematic Site Plan Based on Mass Composition, NTS](image1)

The element of the indoor waterfall is as an application of biophilic design. According of Orfeu Buxton, a researcher from Live Science said that the sound of the gurgling water can influence one’s mind to remain calm, comfortable. In addition to water as the main biophilic element, brick materials, garden walls, indoor plants, beige wall paints (earthly color), outdoor furniture, woods elements, natural stone-grass shades carpets for the floor area also used.

![Figure 5. Schematic 1st Floor Lay Out Plan, NTS](image2)

![Figure 6. Perspective Outdoor Space–Private Booth](image3)
4. CONCLUSION

New Co-working space research at Lot. 6 This SCBD becomes a new co-working space design that prioritizes outside activities. There are elements of outdoor architecture that are integrated with technology, i.e.; 1) Private office cubicle pop-up system with a sensor system; 2) Public bench integrated with solar panels, wireless charging, USB and power plugs; 3) Canopy design with the application of bio mimicry integrated with solar panels; 4) There is a public space that can be used by the public according to needs, play-fun-work; 5) Co-working space as a pocket-friendly place - no need to rent SCBD offices, which are very expensive; 6) The application of the Internet of Things (IOT) is applied in all aspects, in the form of censor from starting to enter the location until exit the location. The research concludes that the co-working space design approach with the biophilic design concept is the best so far, is a refinement and complement to the existing co-working space design. Because the design of co-working space with a biophilic design approach is able to bring people back to nature, so as to increase productivity and creativity of the millennial generation.
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