

# Building Coverage Ratio at the Eastern Corridor of Jalan Ir. H. Djuanda Bandung

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**Abstract.** Historically in the Colonial period, the Corridor of Jalan Ir. H. Juanda or better known as Jalan Dago was designed as a residential area. As the high development of commercial activity along of Bandung City, almost all of buildings in this area are turned its' function to supported commercial activity. The change is shown in many aspects from the shape of the building and even occur in changing the old building into a new one due to a high intensity of this commercial activity. This paper investigates the use of Building Coverage Ratio regulation related to functional change in the Corridor of Jalan Ir. H. Juanda Bandung. The aim is to what extent the regulations related to Building Coverage area are implemented. This study used a descriptive qualitative method by conducting observation to identify buildings on the Corridor by dividing it into three segments. The results show quantitatively there is a lot of irrelevancies to Building Coverage Ratio regulation which is shown in the second and third segment. Most of the building in the first segment has in compliance with the regulation. However, to build a harmony in characters of City corridor is not only created by Building Coverage Ratio but also others parameters such as the land use, the shape of buildings, façade, and design concept. Thus, it is highly recommended to create a detail regulation regarding those parameters.

## 1. Introduction

The urban activities often take a significant impact on the development of building order and the pattern of the City spatial use. Activities related to social, culture, and economy of citizen that conducted in a long term can determine the pattern and physical form of the building that accommodates the activity. The connection between the house and environment changes with the changes of a perspective is done tiered starting from the activities change then a life style change that has the consequences of social values' change until finally influence towards the societies' perspective change [1].

Through the Colonial period, the eastern Corridor of Jalan Ir. H Juanda or better known as Jalan Dago was designed for a residential area. Therefore, physically this area has a specific residential characteristic, from the building façade to the use of open space area. The growth of economic level at the Bandung society has had the impact on the high level of commercial activity along this Corridor. This area is, later on, turn into a commercial area and become a tourist destination. This area has been transforming the building and space to accommodate the commercial activities.

The city regulation became very important to manage the growth of city spatial use and physical structure of the buildings. In the detailed spatial planning of Bandung city from 2015 to 2035, Jalan Ir.



H. Juanda is categorized as a trading and service zone including sub linear trading and services. As the consequences, changes of the residential building into the commercial buildings cannot be prevented. As a result, many of buildings has changed from residential to commercial function. The significant changes even occur in the changes of physical structure of the buildings.

This study investigates one of the research aspects of the application of City Rules on the Eastern Corridor of Jalan Ir. H. Juanda Bandung related to the land use changes. The discussed is focus on investigating the implementation of Building Coverage Ratio at the Eastern Corridor of Jalan Ir. H. Juanda Bandung related to the land use change. The aim of this study is to examine the extent to which implementation of the regulation related to Building Coverage Ratio (BCR) influences the land use changes.

## 2. Material and methods

### 2.1. Research location

This study conducted along the eastern Corridor of Jalan Ir. H. Juanda Bandung from the intersection of Jl. Dipatiukur at the north to the intersection of Jl. RE Martadinata at the south. According to Detailed Spatial Planning of Bandung City from 2015-2035, the corridor of Jl. Ir H. Juanda is located in the north of Bandung and included into Cibeunying region. As stated in detailed spatial planning for Bandung city, the purpose of Cibeunying region is to be Travelapolis that focuses on culinary tourism center. Regarding that, the eastern corridor of Jl. Ir. H. Juanda, which is the focus of the current study, is identified as a trading zone, including sub-zone of linear trading and services.



**Figure 1.** The Corridor of Jl. Ir. H. Juanda, and the segmented areas for the study. Source: Research document

### 2.2. Data collection

The observation conducted by divided the Corridor into three segments. This segmentation was based on the level of commercial activities occurring in this Corridor. The first segment is at the intersection of Jl. Dipatiukur to the intersection of Jl. Teuku Umar. This segment is the area with the lowest commercial activities. The second segment starts from the intersection of Jl Teuku Umar to the intersection of Jl. Cikapayang. This area has a moderate level of commercial activities. The third segment is limited by the intersection of Jl. Cikapayang and the intersection of Jl. RE. Martadinata. This segment has the highest level of commercial activities among the three.

## 3. Results and discussion

The Building and environmental regulations are the ordinances of Government seek to provide controlling the land use, buildings, and the utilization of infrastructure facility. The Regulations created by local government to ensure the safeguard of the security, environmental comfort, and public health, impact on improvement of welfare [2]. In Indonesia, the Municipal regulations including requirements of permits, environmental and building codes stated in Detail Spatial Planning of the

city. One of the rules is zoning system determines building intensity, including Building Coverage Ratios (BCR) and Floor-Area Ratios (FAR).

The Building Coverage Ratio (BCR) is the percentage rate of the comparison between the total width building area with the overall land area. Another notion, BCR is the size of the building's floor plates constructed (e.g. first-floor total area) compared to the total size area of the whole plot of land. For example, if a plot of land is 100 sqm and the Building Coverage Ratio is 60%, then the first-floor building is built could reach 60sqm. On the other hand, Floor-Area Ratios (FAR) is the percentage rate of the comparison between the width of entire floor area of the building and the width of spacious land planning. Categorized as a trading zone with service and linear trading zones. Zones in the Detail Spatial Planning of the city are areas or areas that have specific functions and characteristics, while subzone is a part of a zone that has certain functions and characteristics that are detailed from the function and characteristics of the zone.

Floor-area Ratio (FAR) is a coefficient comparison between the width of floor plan area and that of land area [3]. According to the Regional Regulation of Bandung Number 05 the year 2010 About Building, building coverage ratio (BCR) is the percentage based on the ratio of ground floor area and that of land area that is controlled in accordance with the city plan. It is required to limit the area of paved closed land, as an effort to conserve the ecosystem so that in the environment concerned the remaining land as an open space is still able to absorb/drain rain water into the soil. It is also important for prevent overbuilding and to preserve areas of greenery and landscaping [4]. Components that include Building Coverage Ratio (BCR) count are buildings, which are covered in roofs, and other closures such as driveways, rebates, terraces, and others that cannot absorb water into the ground. Provisions on the Building Coverage Ratio (BCR) are differentiated in BCR levels, which are high, medium, and low density.

According to Detailed Spatial Planning of Bandung City from 2015-2035, Jl. Ir. H. Juanda is categorized as the primary collector road. This area includes to Cibeunying area that has a purposed to be Travelapolis zone focuses on shopping and culinary tourism center [5,6]. The development of tourism activities in Bandung especially in culinary and shopping trend has affected the existence of the policy. As the result, this area has a lot of business potential that invited a number of investors to develop their culinary and fashion business. The space and building at this area have transformed to accommodate the shopping and culinary activities.

Building Coverage Ratio applied in the trading zone at this area is 70% at the maximum of land area width. It means every lot have to provide at least 30% of open space that still able to absorb the rain water. Every open space can be functioned as a parking lot or a courtyard. It depends on what facilities are required. As an illustration, if the land area is 1000 square meters in Corridor Jl. Ir H Juanda, the maximum ground floor area to be built is 700 square meters, in accordance with BCR policy for this area.

The pattern of commercial activity movement on Jalan Ir.H. Djuanda begins from the southern part of the road approaching Jalan Merdeka, which is closed to city center. The intensity of commercial activities on the segment between Jalan Cikapayang and Jalan RE. Martadinata is higher than the previous road segment that leads to the northern part of the city. Linearly, the movement of this commercial activity encourages the uncontrolled pattern of urban space usage, resulting in many new functional buildings that do not apply BCR rules. The enhancement of commercial activity has forced the owner to change some of and even the whole building that can provide the commercial space. Several lots had been merge to support increasing commercial activity. Most changes occur in the third and second segment. Quantitatively, implementation of Building Coverage Ratio on both segments has a lot of buildings that have exceeded the limit of BCR.

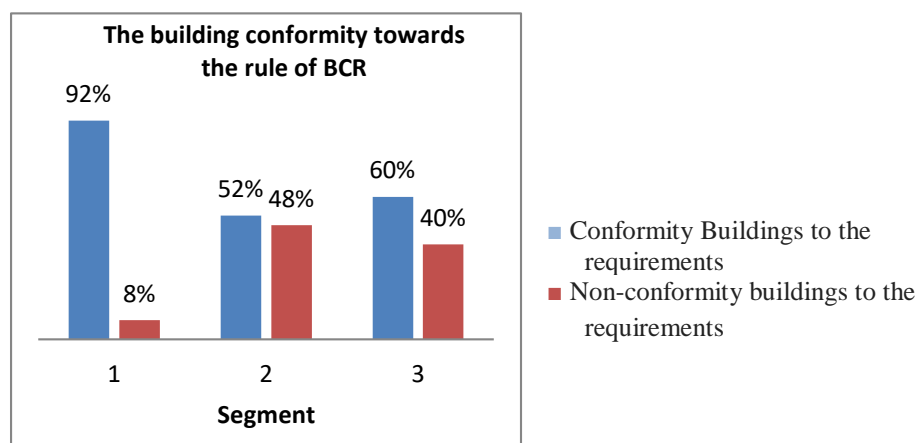
Specifically segment 1 that has the lowest intensity of commercial activity along this corridor, dominated by offices and restaurant. The shape of the building and the outer space pattern is still relatively similar to the initial function as Residential, only some of the identifiable façade of the building has changed. There are 23 lots that are observed in this segment still in accordance with BCR rule. Approximately there are 8% or 2 lots that are not in accordance with BCR rule. The two lots in

this segment that exceeded the BCR rule that is lot 7 and lot 9. From field observation Lot 7 serves as a residential building but has undergone a renovation of its original form. The deviation in lot number 7 reaches 10.47%. The ground floor area reaches to 330.2 square meters from the maximum 287.2 square meter. Lot 9 is a residential building that converted to office with an addition at the side of the building. The deviation in this lot reaches 11.39%. The ground floor area reaches to 1728.6 square meters from the maximum 1486.5 square meter allowed.

The segment 2 that is located between Jalan Teuku Umar and Jalan Cikapayang have relatively moderate levels of commercial activity. The dominance of activity in this segment is Banks, Hospital, restaurants, and Outlets. The presence of high commercial activity resulted in significant changes in physical buildings and environments. There are 48% or as many as 11 lots from 23 lots in this segment that is in accordance with BCR rule. Approximately the average of deviation reaches 5.99%. The Lot 42 was identified as an office which was having the highest deviation of 14.28%. The ground floor area reaches to 637.6 square meters from the maximum 529.6 square meter allowed

The third segment adjacent to RE Martadinata road is identified as the segment with the highest commercial activity. In this segment, the movement of commercial activity is affected and directly adjacent to the city's economic generator center. Shopping centers, hotels, and restaurants are the dominant functions that lie in this segment. From field observation, it is known that segment 3 is the most changing area compared to the other two segments. In this segment is known many old buildings that have been replaced with new buildings. There are also several lots that have been merged or split to accommodate the commercial activities. The average of deviation in this segment reaches 7.87%. The lot 53 was identified as a store which was having the highest deviation up to 20.06%. The ground floor area reaches to 347.2 square meters from the maximum 269.9 square meter allowed. Overall, BCR rules in this segment are applied by 60% of buildings, while the remaining 40% has exceeded from the rules set.

The study found that the deviation occurred at 1.15 at the lowest and 20.06 at the highest with the average 8.93. From the observation found that the highest BCR rule incompatibility is happened due to either the replacement of old buildings with a new one or the changes of the weight of site. Meanwhile, the lowest deviation occurs at the change of the activity while maintaining the original design of the building. Overall, the incompatibility with the BCR rules found in 92% at the segment 1, 52% at the segment 2, and 60% at the segment 3 as seen in figure 2.



**Figure 2.** The Building conformity towards the rule of BCR. Source: Research document

#### 4. Conclusion

The eastern Corridor of Jalan Ir. H. Juanda has a lot of changes from the original design. As the commercial activities are increasing by years, the physical changes at this Corridor became inevitable. The residential function that was created at the Colonial period has transformed to commercial function. The Detailed spatial plans of Bandung in years 2015-2035 has stated that Jalan Ir H Juanda is

categorized as trade zone and service. Building Coverage Ratio applied in the trade zone in this area is 70% at the maximum of land width. The study found a large number of buildings in the segment between Jl. Teuku Umar and Jl RE Martadinata exceed the limit of BCR. It is found that the total change of buildings and the change of land width are the cause of the highest incompatibility with the BCR rule. For future development, implementation of BCR rule should be clarified to create a balance of the environment and to build a good quality of public health.

## References

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