IV-35 ANALYSIS OF PHYSICAL RELATIONSHIP BETWEEN RAILWAY STATION BUILDINGS AND SURROUNDED NETWORK IN TOKYO CITY

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INTRODUCTION

Railway stations are becoming major part of mega-cities that can not be separated from their whole urban structure. There is a great movement towards their renovation in both indoor and outdoor spaces. The arrangement of the station layouts at all levels of outdoor spaces have great influence on achieving both accessibility and comfort of passengers. Consequently, this study focuses on analyzing the current physical relationships between the station buildings and the surrounding street networks in Tokyo City. The analysis was conducted to obtain the main patterns that characterize these relationships.

OUTLINES AND METHODOLOGY

In order to obtain common physical patterns that can clarify the relationship between the railway station building and the surrounded network and in order to construct the typology of space structure around it, two-dimensional analysis was conducted. The study covered about 100 stations in Tokyo City including main stations in Tokyo central area and its suburbs. The considered area of study around the station was taken as 500 meters.

Table 1: Physical patterns of railway stations in Tokyo city

KEYWORDS: Railway Stations; physical analysis; space structures.

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Table 1 represents the main physical patterns in Tokyo City. These patterns were classified into three categories named (A), (B) and (C) in order to obtain intuitive visual comparison. Category (A) was considered for cases of stations having two squares. Category (B) was proposed for cases of stations having one square, while category (C) was proposed for stations having no squares divided into two subcategories, in which the first one represents the straight relationships while the second represents the skew relationships. It was revealed that the common patterns of stations differ according to the area under consideration. Therefore, the study was divided into two parts in which the first one considered the physical patterns in Tokyo central area excluding huge stations, such as Tokyo, Ueno, Ikebukuro, Shibuya and Shinagawa, because they possess special space structures. The unique types of these huge stations can be attributed to the fact that successive extensions were done to fit their important locations and daily needs of passengers. The number of stations considered in the first part was equal to 32 stations. The second part dealt with 62 stations that branch to Tokyo suburbs. The common types in each category were also clarified and highlighted in Table 1.

ANALYSIS RESULTS

The following charts represent the analysis results in Tokyo central area and the suburbs of Tokyo for each category.

Chart 1 represents the percentages of types of category (A). It can be seen that the common type for Tokyo central area is type 4 while the common type for Tokyo suburbs is type 1. Chart 2 represents the percentages of types of category (B). It is shown in the chart that the common type for Tokyo central area is type 2 and type 3 is the common for Tokyo suburbs. Chart 3-A represents the percentages of types of category (C1). It can be seen that the common type for both Tokyo central area Tokyo suburbs is type 1. Chart 3-B represents the percentages of types of category (C2). It can be seen that the common type for both Tokyo central are as well as for Tokyo suburbs is also type 1.

It was observed that the common type 1 in category (A) shows visual dominance for the station but has a disadvantage of difficult traffic treatment that depends on both length and width of the link. The common type 2 in category (B) has the same features previously discussed in category (A) only for side of the station that has the main entrance. For the common types of both category (C1) and (C2), the station image is decreased according to absence of approaches for the station.

Chart 1: Category (A)

Chart 2: Category (B)

Chart (3-A): Category (C1)

Chart (3-B): Category (C2)

CONCLUSIONS

Physical studies have great importance in the analysis of common characteristics of spaces, thus facilitate their individual study in order to express the degree of accessibility and how the station is linked to the city.

The study showed that there are various types of space structures around the stations in Tokyo City. Because of the congestion and the concentration of business activities in Tokyo central area, the common patterns tend to link the stations directly to the main streets rather than having squares. On the contrary, the common patterns in the suburbs belong to the station s having one square as an important approach of the station building.

Further visual study taking into account the type and cross sectional forms of the stations should also be conducted in order to identify a whole image of the shortcomings affecting the recognition of the station buildings.

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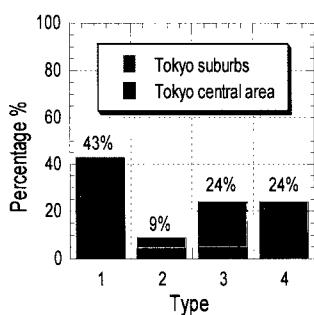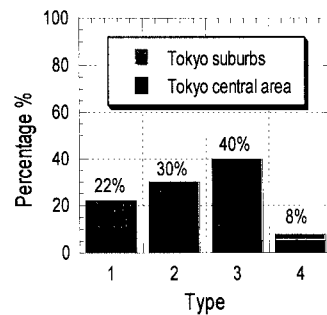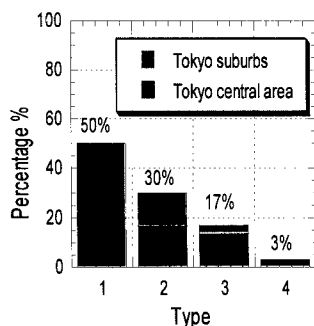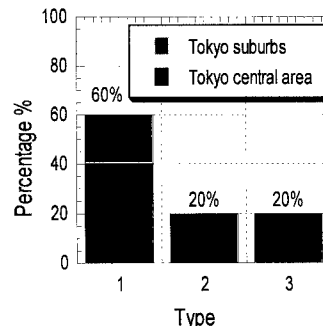3. Kubota Y., "Landscape design of streets," Chapter 5, pp 92-137, 1985 (in Japanese).