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Thesis Title: La Aguacatela - Transport Hub in Medellin

Review of the Diploma Project: La Aguacatela - Transport Hub in Medellin

The subject of the diploma thesis is to design a new transport hub in the city of Medellin, Colombia. The author claims that his project fulfills the local building codes; however, it would be beneficial to the project to pinpoint the main restricting parameters of the building regulations. Due to its remote location, it is challenging to judge how well the project adheres to local regulations. The project explains the POT urban planning tool used in Medellin, concluding that Medellin aims to densify the inner city. This goal supports the project's aim to develop a more fluent public transportation system with greater capacity. However, the author does not work on the entire transportation network but focuses on one transportation hub – the Aguacatela station.

The author provides images of his CAD model depicting the current Aguacatala, but he does not provide concrete information on why the existing station does not function adequately. Statements like "The station nowadays does not possess the necessary physical infrastructure, etc." are vague for the project's hypothesis. Nevertheless, this becomes more clear later in the main part of the proposal.

A large section of the thesis is dedicated to the characteristics of a transportation hub. It is clarified that one of the biggest obstacles for the metro network is the terrain of the location. The author presents some data on the local train dimensions, but putting this data in a table would provide more clarity. It is good to present a diagram of the capacity of the existing transportation system of Medellin, but how is this information reflected in the new proposal for the Aguacatela station?

In the site analysis, a substantial amount of work focuses on analyzing the city infrastructure adjacent to the Aguacatela station. Yet again, a summary of these diagrams is missing, which would navigate through these analyses and clarify how this information was addressed in the project.

The author further presents some case studies. Again, it would be beneficial to summarize the pros and cons of these projects in a table.

The main part of the project – the Aguacatela transport hub – starts with flow diagrams of traffic movement. This is a welcome part to better understand the project, I would say the most important one. It becomes clear that the main qualities of the proposed station lie in its improved flow for commuters. The proposed solution is a geometrically simple, compact building complex connecting different types of transportation at the Aguacatela hub. The drawings are adequate as a massing study but significantly lack detailed information. Legends, structural details, etc., are missing. At this point, it is not clear whether the project wants to present itself in the schematic design or design development state. It appears to be a mixture of both but is not complete in either.

The author also presents some active and passive systems for thermal control. Yet again, many data are missing. For example, regarding the PV panels on the roof, what is their capacity and how much do they contribute to the energy load of the station? Facade elements can certainly protect against sunlight, but will they also aid the interior with passive ventilation? To support the benefits of these proposed systems, the thesis misses climate analysis and some fundamental analysis of the building.

To conclude the review, I find many parts of the work to be developed in the right direction. However, substantial work and information are missing to support, clarify, and make the project complete and more readable. There are also unnecessary typos throughout the project. "The devil is in the details," and these have not been resolved at the level expected of a diploma project.

I recommend the submitted diploma thesis for defense and propose a grade of C (70).

Questions:

The review already contains many questions on which the auther can reflect.

In Brno, on June 6, 2024

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Martin Kaftan
Opponent of the Diploma Thesis