SUMMARY

The Leon van Gelder College is a public secondary school for education. The building was designed by the architect Thomas Rau, and it was constructed in 2004 and completed the beginning of 2005. It was built keeping in mind the **sustainability and innovations of energy efficient**, they wanted that this was one of **the lowest power consumption** of all the schools in Groningen. The heating system of the building is working with a **heat pump** combined with concrete core activation which should provide a smooth and pleasant heated or cooled building, and the construction us composed of a column structure in combination with a monolithic floor. This building has differents types of facade with curtain wall and with profiled steel plate with a insulation of glass wool or rock wool. The first idea when O2G2 thought about built this school, they wanted to built the lowest power consumption in the city of Groningen, but it was just the opposite, one of **the most expensive school** in terms of energy consumption O2G2, therefore **it doesn't fulfill the required standards for the sustainability** rules and normative of the buildings and the goals for the original project. **It was built as energy efficient building as a goal, but is exactly the opposite**

This thesis is about how it could be **improved the climate comfort** inside the building and how could be solved the problems the building has. The school **has high energy losses** and the heating system has a lot of problems about how it works and it is for both the employee and the student **is not very nice to stay in this school** in these circumstances. Therefore it is important to find out where the problems are and **what are the possibilities to solve this**. This is the proposal made to the school where they determine what they will do with this information. So the school chooses to initiate a further investigation of the individuals with this information can do any further investigation. Additionally, the school wanted to improve the comfort space in some areas such as the staff room and a new cafeteria. In the Literature Research in this Thesis there is all the information about **sustainable buildings**, how this heating system works and how we can improve the **comfort climate** in a building with this problems. In addition, there are all the case of study and investigation about this building that we made for figure out a good solution for this problems, as well as all the solution and **constructive details** for improve the comfort in the areas above mentioned.

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