New old school | Pathways towards health-promoting school buildings


Background
- A large proportion of the buildings that will exist in German cities in 2050 have already been built. At the same time, more space will be needed. The refurbishment and expansion of existing buildings is therefore becoming an increasingly important and frequent construction task, while new construction tasks are declining.
- A large refurbishment backlog also exists for school buildings. Local authorities state that half of the 43,000 or so school buildings in Germany have significant refurbishment backlogs.
- At the same time, refurbishments offer several opportunities to intervene in the building stock and improve it.
- Firstly, refurbishments offer the opportunity to adapt school buildings to modern pedagogical concepts, in which traditional frontal teaching is becoming less and less common.
- Second, there are often opportunities to improve indoor environmental quality, such as lighting conditions, thermal conditions, or acoustics, and to take a health-promoting approach. Poor indoor air quality can
cause breathing problems, headaches, fatigue, and decreased cognitive performance. Poor lighting conditions can reduce learning curves and impact our day/night rhythms.

- Third, requirements related to environmental, economic and social sustainability can be improved.
- In summary, schools play an important role in shaping the future opportunities of individuals and society as a whole. They provide education, socialization, as well as personal development.
- By retrofitting schools with a health-promoting approach, architects can help create a healthier and more productive indoor environment for the building’s occupants.

Task
- The aim of this M1 design studio is to incorporate aspects of user-centred, health-promoting and sustainable construction into the design process in order to promote the well-being, health and performance of the building users.
- The task is to develop a concept for a health-promoting school renovation based on a given specific example and to translate it into an architectural design.
- The special school Roda-Schule in Herzogenrath offers the opportunity to get to know the special focus of mental development and to discuss concrete challenges and opportunities with the school management and a representative of the Städteregion Aachen.
- In addition to the examination of the specific needs of the users, i.e. the students and the teachers, the analysis of the climatic conditions, the condition of the existing building as well as the requests for changes, a concept is to be developed first, followed by a design for a redesign.
- Design approaches are to be tested with regard to their performance with simulation tools. Previous knowledge is not necessary, but the willingness to learn the basics independently through the online tutorials provided. The aim of the simulations is to study the visual and thermal comfort behaviour of the rooms and the effects of measures on the energy demand.
- The result should be a design contribution with an above-average health-promoting school building.

Organisation
- 1. meeting: 09.10.2023 9:00 - 12:00 – SCHOOL VISIT in Herzogenrath + Issue of assignment and introduction to the topic.
- Core times for colloquia, tutorials and supervision are Mondays from 9:00 - 12:00, special dates will be announced well in advance.
- A part of the tutorials and supervision will be held in English.