Development of future room types and learning and working clusters

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In these changing times, how do we create future-oriented learning spaces that fit flexibly into the planning and building process? To begin with, we need to look at the learning experiences we want now and in the future, not just in isolation but as part of the whole university campus. This results in the creation of a comprehensive catalogue of room types and assorted space clusters across the university, applicable both in the planning phase and for operational use.

Educational concepts are evolving at universities worldwide, partly due to technological advancements, altering campus space needs and requirements. In new construction and renovation projects, it is necessary to make decisions today about spaces that may only be occupied ten years down the line, and then could be used for another 50 years following that. A project team, comprising ZHAW's finance and services project leaders, Institute of Facility Management staff and EBP Switzerland AG personnel, was tasked with devising a procedure that will allow future teaching and learning spaces to be developed in a participatory manner.

Activity-based educational environments

Like the ZHAW, many universities have opted for a blended learning approach that uses a mix of in-person and online learning. This approach necessitates diverse spaces for teaching and learning that are tailored to the specific needs of each academic field and the personal needs of teachers and students. The shift from traditional individual and group offices towards activity-based work environments is well underway in office settings. Now it appears that the educational domain is transitioning from conventional lecture halls and seminar rooms to dynamic, activity-based learning environments.
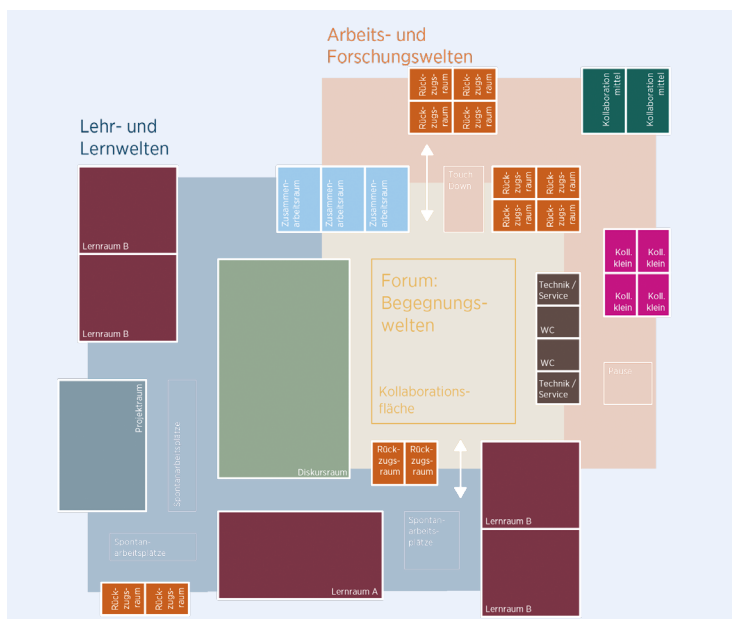
Categorising room types

Employing an interdisciplinary and participatory bottom-up approach, a comprehensive cross-university catalogue is being developed across all ZHAW schools, establishing a universal standard. The catalogue includes both visualisations and information which are useful to stakeholders involved in new constructions and renovations – ranging from real estate departments to architectural firms, educational authorities and building agencies – as well as operational stakeholders including educators, students, space planners and administrative and technical staff.

Forming clusters

However, teaching and learning spaces are not solely for educational activities; they also facilitate social interaction and a sense of belonging. This dual-purpose influences both the individual design of educational spaces and their integration within the larger campus ecosystem. To illustrate the complex functional interrelationships to planners, clusters are developed through a participatory bottom-up approach, combining room types and areas that complement or depend on each other operationally. For instance, a cluster might integrate both educational and workspaces within the campus setting. The illustration shows an example of a university campus cluster that combines teaching, learning and working environments.

Employing the room type catalogue makes it possible for a university, as well as the necessary administrative bodies, to systematically plan for new constructions and renovations based on projected figures and prioritise the needs of the end-user. The visualisations within the catalogue assist architects in understanding the broader context and devising appropriate plans accordingly. Additionally, educators, students and space planners can fully grasp the functionality of these spaces, thereby utilising them effectively as educational tools. Consequently, this approach has laid the groundwork for an innovative, activity-based and dynamic framework in educational space planning, tailored for the future. ∎

Functional diagram cluster 'Learning and Working World' – context of the rooms and areas on campus (EBP Schweiz AG, 2023)

Food for care

High interest in more flexible food services in nursing and care homes (Colourbox)

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Can technology make it easier to offer flexible and resident-focused food services in nursing and care homes, despite budget constraints and a shortage of skilled staff? This question was addressed by an interdisciplinary team together with the ZHAW Competence Centre for Technologies in Health Care. In a preliminary study, we first interviewed experts and then conducted a survey. The study revealed a strong interest in improving food services in nursing and care homes. However, it also highlighted that food services need to be considered alongside several other factors in order to ensure effective evaluation and development. With this initial investigation behind us, we will now continue with a more extensive main study. To be continued!

For more detailed information, the final report of the preliminary study is available for download:
➡ **zhaw.ch/ifm/food-for-care/en**

NIMMO portfolio assessment – a system for evaluating real estate holdings

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The improved NIMMO tool offers a platform for examining key sustainability aspects in detail, in accordance with the EU transparency mandates for existing properties. Its design caters to extensive real estate portfolios, making it particularly relevant for municipalities and cities.

The 'NIMMO Inventory' sustainability evaluation framework, a joint effort by the Zurich Real Estate department (IMMO) and the ZHAW Institute for Facility Management, appraises the sustainability of existing properties based on 23 criteria spanning nine thematic areas. Its development included the consideration of a variety of standards, from international (e.g., SDGs) and European (e.g., DGNB, LEVELS) to national (e.g., SNBS), blending global and local benchmarks. Aimed at both municipal administrations and private portfolio owners, the system now includes functionality for assessing compliance with EU taxonomy regulations for existing buildings. Through a partnership with the Swiss Society for Sustainable Real Estate Management, there are plans to make the tool available for certification purposes under an open CC license. There are also ongoing developments towards establishing a comprehensive potential analysis system for individual buildings as well as for broader urban districts. ➡ **sgni.ch/nimmo**

No.	criteria
1	Climate protection - CO2
2	Climate protection - Energy
3	Mobility
4	Environmental protection & Sustainable procurement
5	Recyclables management & Circular economy
6	Water management
7	Ecosystems & Biodiversity
8	Indoor air quality - Fresh air supply
9	Indoor air quality - Pollutants
10	Thermal comfort - Winter
11	Thermal comfort - Summer
12	Visual comfort
13	Acoustic comfort
14	Safety & Security
15	Design for all
16	Quality of indoor spaces
17	Quality of outdoor spaces
18	Operating cost
19	Building substance
20	Usability & Space efficiency
21	Identity-creating & (building) Cultural value
22	Climate adaptation - Temperature
23	Climate adaptation - Extreme weather

NIMMO evaluation criteria