

# ARCHITECTURE BETWEEN ART AND SCIENCE

## ARCHITECTURAL EDUCATION FOR THE 21<sup>ST</sup> CENTURY

Educating architects and designers for the future, is it a question on choosing between a narrow elitism approach for the hardcore architects or a broader approach focusing on solving complex integrated problems facing architects and planners working with global challenges for our future?

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Photo: Georg Glaeser

*Knowledge for a better world* is the headline for NTNU's strategy for the next ten years, focusing on how to develop knowledge and create values, - economical, cultural and social values. At NTNU we will use our broad academic field and our interdisciplinary approach to meet the large and complex challenges our nation and our global society are facing in the future.

At NTNU Faculty of Architecture and Fine Art we do not aim to forecast the future, but we aim at giving our students in architecture and planning a knowledge platform, attitude and skills to enable them to work with the challenges of tomorrow, and to cope with the rapid and dynamic changes characteristic for our time.

The future will ask for creativity in architecture and design, and in our studies we will stimulate students in working with ex-

perimentation and innovative solutions. The global challenges for health and welfare, energy and climate, environment and resources, represents important focus areas for the architectural education in the future. A special challenge rests on architects and planners in addressing the problems of rapid global urban development and the need for housing and infrastructure.

Education strategies for the unknown future are not new for a school of architecture at a university level. Our school at NTNU was established more than 100 years ago, and our history has taught us that the fundamental knowledge and skills for an architect still will be the basis for our future architectural education.

And education is by nature a long time project. It takes almost 20 years from the junior starts in the primary school before gradu-



Taleræret. Full scale student project 2010. (Photo: Ole Tolstad)

ating as a master in architecture. And when in practice as architects and urban planners, they will face the increasing need for updating their knowledge and skills as part of a lifelong learning.

One way to learn and plan for the future is to look back what happened 10, 20 or 50 years ago. In our field of architecture, art and construction, have we really seen major changes or paradigm shifts during the last 50 years? New materials and technologies have given architects and designers the possibility of experimenting and developing new forms, use new materials, new structures and constructions. But it has not been any fundamental paradigm shift. Most of the construction methods are more or less the same as 20 to 50 years ago. The construction industry is also known for low productivity development compared to other industries.

What really has influenced our education, research and practice the last 30 years is the paradigm shift we have had in information technology and communication. The www is less than twenty years old, introduced in 1993. This technology development has changed the way we teach, the way to study, the way to communicate and the way we are working and living. The IT-development has also been the driving force for the rapid globalization in education, research and professional life for architects, designers and artists.

**In our strategies** for the unknown future, NTNU will develop our education and research with the following priorities:

- Give our students a fundamental base of knowledge, basic competences and skills for architectural design and planning,

And strengthen the process of creation with emphasis on ethics and reflection. The base of knowledge will also build on technology and natural science, and have important elements of knowledge platforms from humanities, economics and social science.

- In architecture and urban planning, students must learn to form the future, not only to respond to what the future brings. They have to create environments that are clear, understandable and inspiring giving users the necessary platform and stability in a rapid changing world. By creating environments with architectural quality that develops and matures over time, instead of expressive clichés



Pinus Silvetris. Sculptures by Tore Reisch 2009. (Photo: Nina Tveiter)

with only today's content and no sustainability, we will have an architecture that will form and work as a reference for our future.

- Further develop and stimulate our students in developing competence for problem solving and understanding of integrated systems and complex problems. This approach must be based on inter-disciplinary and cross-disciplinary approaches, where students work in integrated design teams and learn about processes and co-operative project development. Future architects needs to have a deep understanding of the society and the people in creating a better world.
- The climate changes and the need for a more sustainable development on a local and global level, sets specific requirements for the transformation and development of our basic education in architecture and fine art, as well as the specialization and deeper research based knowledge needed for sustainable architecture, sustainable buildings and sustainable urban development. Our research centre ZEB - Zero Emission Buildings at NTNU will be a driving force in the research development for the future, as well as our international program "Master of Science in Sustainable Architecture". <http://www.ntnu.edu/studies/mssusarc>.
- Knowledge development and innovation in architecture are based on a combination of education, research and practice. In order to prepare our students for the unknown future, we will strengthen

the research based education and develop a stronger theoretical understanding of architecture, planning and art.

- What students learn, indeed, what we all learn, is intrinsically linked to *the way we learn*. For our faculty to assist students in gaining professional insight and strengthen their capacity to meet future, yet unknown challenges, they also have to *learn outside of the studio*. They have to be positioned so they somehow can practice their future profession. This will force them to take responsibilities for their actions, enable them to better improvise, to develop tactical skills, to



TYN tegnestue. Student project in Thailand 2009. (Photo: Pasi Aalto)

improve their communication skills - and not least help them develop their aesthetic sensitivities for better to understand their professional mission. We have already embarking on that route through 'working in the real' - and with formidable results, I may dare say - in many small projects around the world.

**The future needs architects** and planners able to work with the unknown, being able to cope with the rapid changes and broad and complex problems. The problems will demand both a basic understanding and skills in architectural design, as well as creativity and innovative solutions. NTNU's educational strategy for the unknown future will be based on awareness of the need for architecture between art and science, and a sensitivity and feeling close to the heart.