MSE | MASTER OF SCIENCE IN ENGINEERING

Building Restoration and Building Physics

Sustainable energy use is currently one of the key issues in the world of construction – from potential forms of alternative energy to technical building measures. People are also demanding ever-greater levels of comfort in their homes. Light and comfortable temperatures are important, as is the need for quietness, with its associated sound insulation. The specialisation entitled «Building Restoration and Building Physics» concentrates on these aspects, which have a direct effect on building design, construction technology and execution. This applies, on the one hand, to new buildings and, on the other, to the renovation and conversion of buildings that will grow in importance.

For more than 15 years, the research and development department of the Bern University of Applied Sciences has carried out projects in the areas of applied construction physics and of building in existing structures. We can offer very well equipped test stations, modern IT infrastructure and experienced staff, providing ideal conditions for your studies.

Course contents

During the course, you will work on project-related tasks that will require you to consider aspects of construction physics across a broad spectrum. You will analyse building materials and elements, as well as the signs and causes of damage, and will develop practice-oriented solutions.

You will acquire a thorough knowledge of materials technology; of the development and uses of building elements; of quality management; and of the maintenance of the fabric of buildings. The ability to analyse types and symptoms of damage, as well as the damage mechanisms of common structures and the consequences of changes of use, are of importance to your future professional life. Of equal importance is the ability to carry out a focused and informative analysis of a building's condition, and provide a professionally solid interpretation and evaluation of the results. Numerical methods form the basis of this work.

Projects and the master's thesis will be carried out on the basis of topical research and service projects. The focus will lie on analysing the state of buildings and on sound insulation and fire protection.

Specialists in building restoration and building physics deal with the physical characteristics of construction materials, construction elements and structures and develop innovative practical solutions.

Bern University of Applied Sciences
Architecture, Wood and Civil Engineering

As part of your specialisation in «Building Restoration and Building Physics» you will acquire greater knowledge of one or more of the skill sets below. You may also combine them with skill sets from another specialisation area within the Master Research Unit «Integral Planning and Construction».

Building restoration

Much future construction work will be carried out on existing buildings. Not only will greater demands on the part of the users have to be taken into consideration, so too will stricter requirements regarding the indoor climate and energy efficiency.

As a specialist in building restoration, you will conduct project-specific analyses to determine the condition of buildings in the light of their architectural and structural qualities, as well as their quality in terms of historical preservation. You will develop innovative practical solutions. Your knowledge of applied building physics and of structural systems will enable you to apply suitable solutions and concepts to this field of construction. You will be ideally qualified to work in planning offices, or other parts of the building industry, dealing with building in existing structures.

Building physics

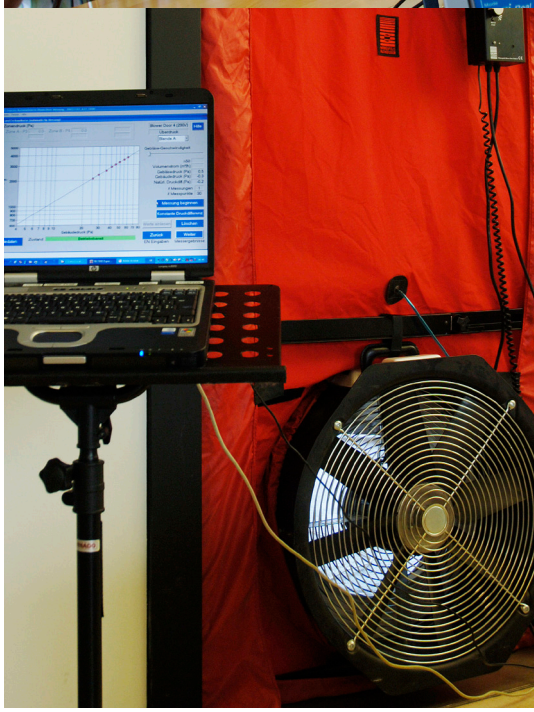
The area of building physics is facing challenges that will require the services of specialists who grasp the changing needs of society and will be able to develop new ways of meeting them. As a specialist in building physics, you will deal with the physical characteristics of construction materials and elements as well as of structures. The classic areas of building physics are structural design; thermal, damp, sound and fire insulation; and the ecology of buildings. You will be involved in interdisciplinary work with other specialists from the fields of architecture, building services, building biology and civil engineering. You will develop innovative practical solutions and will be ideally qualified to work in planning offices, or other parts of the building industry, dealing with building physics. You will be able to apply your skills to solid, wood, lightweight and composite construction.

Qualifications for admission

Bachelor of Science in Civil Engineering (FH, ETH)
Dipl. Ing. in Civil Engineering (FH, ETH)
Architects (FH, ETH*)
Bachelor of Science in Wood Engineering
Dipl. Ing. in Wood Engineering (FH)
Physicists (university or ETH degree*)

* With additional bachelor's-degree level credits in civil engineering

Applicants with qualifications in other disciplines will be considered on the basis of written applications



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September 2009