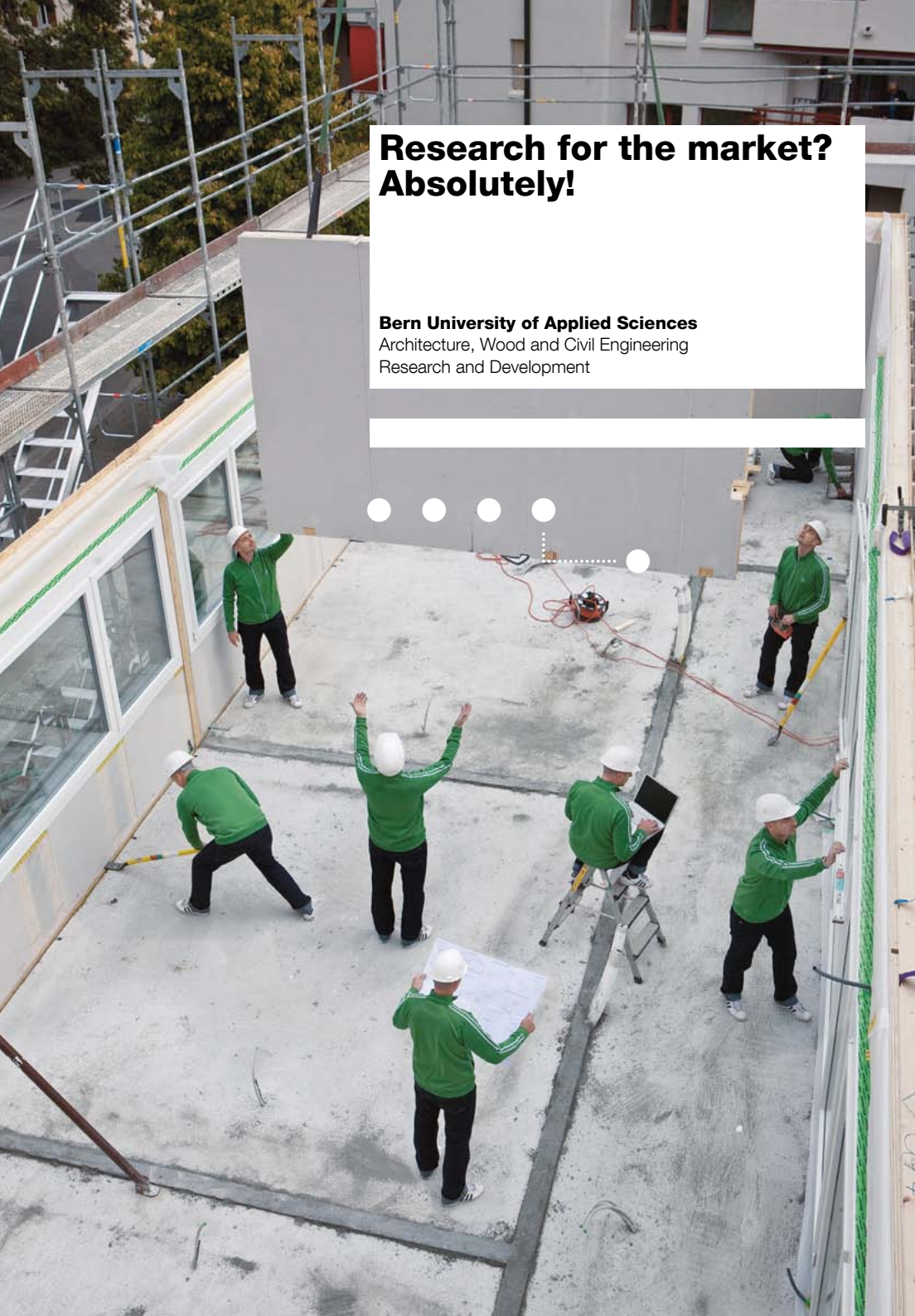


Research for the market? Absolutely!

Bern University of Applied Sciences
Architecture, Wood and Civil Engineering
Research and Development



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- ## Research for the market? Absolutely!

We work together with the industry in carrying out research. Our contact with the industry in the areas of wood and construction is also reinforced through our provision of contract services and the wide range of courses that we offer in continuing education.

We carry out research for the market. Our mission is to develop new products, technologies and processes for the real world. That is why our experts maintain close contacts with business and industry, as well as public authorities. Alongside research and development that focus on practical applications, we also provide contract services to third parties. Our continuing-education activities emphasise practical applications and ensure the transfer of knowledge and technology to business and industry.

We are internationally recognised as a leading university in the areas of architecture, wood and construction, and have distinguished ourselves as a national institution with a global perspective. Our mission is to ensure and promote professional competence in architecture, wood and civil engineering.



René Graf

Head of R+D

Telephone +41 32 344 03 52

E-Mail rene.graf@bfh.ch



Our research, your success

Applied Research and Development. Our research effort is dedicated to finding practical, innovative solutions to real problems on the factory floor and the construction site. Applied research also means finding solutions quickly. This makes us the ideal partner for small- and medium-size enterprises (SME).

Contract services. We offer a complete range of contract services for the industry. The services provided include product testing, planning, expert appraisals and consulting. Our specialists provide expert help with feasibility studies and with product and production optimisation programmes. The accredited tests performed in our laboratories are internationally recognised.

Knowledge and technology transfer. Our training courses and educational programmes have a strong practical bias - this is our way of ensuring that the latest knowledge and technology are transferred into real, daily practice. The Bern University of Applied Sciences Architecture, Wood and Construction is a member of the w⁶ Technology Transfer Consortium (www.whoch6.ch). We use the services of an expert knowledge and technology transfer organisation to ensure that the latest technical knowledge and innovations are converted into everyday reality.

Infrastructure. Our research centre in Biel is the largest in the Swiss wood industry. Furthermore, we run a comprehensive geotechnology laboratory in Burgdorf in conjunction with the Geology Institute of the Bern University. These very well equipped laboratories, combined with modern infrastructure, facilitate our research activities and allow us to carry out diverse product tests. Our laboratories are certificated to ISE/IEC 17025 standard and have SAS (Schweizerische Akkreditierungsstelle) accreditation. The SAS is a member of the International Laboratory Accreditation Cooperation (ilac).

Master programs. Research and development are closely intertwined with the master's qualification. Our research units form the basis of the degree courses; the students are integrated into research projects and teams. We offer the following master's degree courses:

- Joint Master of Architecture
- Master of Engineering in Wood Technology
- Master of Science in Engineering

www.ahb.bfh.ch/master

Project database. Our project database bundles and disseminates knowledge. It offers an up-to-date information instrument where you can find information about public projects. The database contains research projects from all the disciplines at the Bern University of Applied Sciences: www.ahb.bfh.ch/pdb

Competence centres

The activities of the research and development department focus on the processes connected to planning and construction, architecture, wood construction and wood products, as well as geotechnics and water engineering. These topics are studied across all three of our competency centres:

Planning, Building and Manufacturing Processes. We research and develop planning and construction processes that cross the boundaries between sectors. Our work deals with sustainable design for spaces, factoring in social, technological and architectural developments. We also concentrate on the transdisciplinary process – from the production of materials and their processing and design through to components and structures.

Wood Technology and Composite Construction. As architects, construction engineers and wood engineers, we work together to offer comprehensive solutions for wood products and for privately and publicly commissioned wood construction. We develop and optimise products that are based on wood as a raw material, composite and building material.

Natural Phenomena and Geotechnics. Maintaining the quality of natural resources, such as the soil, forests and water, over the long term is a central concern for us. We are developing ways of ensuring that this quality is maintained, as well as working to find ways of protecting people from natural catastrophes and help them assess potential dangers.



Planning, Building and Manufacturing Processes

Research unit Architectural Processes. We develop, facilitate and conduct research into analysis, planning and forecasting methods that markedly enhance the effectiveness of forward-looking planning and construction. Addressing the complexity of life-cycle processes in our built environment forms the core of this management-oriented approach. A holistic and sustainable approach to architectural processes includes issues such as cost effectiveness, functionality and material, energy and resource efficiency, as well as a project's social effects and suitability. We focus not only on the relationship between architecture and health, but also on the quality of living and the life-cycle processes of buildings and housing developments.

Research unit Management and Building Processes. We explore the planning, construction and utilisation processes of buildings in the context of the overall utilisation and investment cycle. We search for techniques to optimise planning, construction and operating processes for buildings. We concentrate on managing processes in open systems that can only be partially influenced. We also analyse target markets, clients' requirements and sector patterns in the construction and real estate industry. In addition, we develop instruments and procedures for companies in this industry, with the aim of strengthening their market orientation, ability to innovate and profitability. We support the distribution and application of knowledge and new findings, technologies and methods within the sector.

Research unit Production and Logistics. We explore automated finishing and logistics processes and the treatment of solid wood and timber-derived product surfaces, as well as the use of software for planning and controlling processes. Our laboratories are equipped to a high technical level, enabling us to contribute our scientific competences in practical and application-oriented ways to national and international research projects, or provide them as services directly to users. By employing modern CNC and robot technology, with the corresponding software, and 3D data collection using laser scanners, we cannot only simulate production processes from the data collection stage through to the end product, but also produce real images. This allows us to appraise technical and commercial feasibility. We are pioneers in the area of process engineering using RFID technology and apply this particularly to the construction of windows, wooden houses, kitchens and furniture. We aim for optimised, automated production with integrated data that is free of flaws and rejects.

Wood Technology and Composite Construction

Research unit Facades, Finishing and Furniture. As part of our research projects and service contract work for businesses, we develop and optimise products and systems in the areas of facades, windows, construction elements, interior finishing and furniture. We take into account all aspects of development, from the requirements of building physics and the characteristics and processing of materials, through to innovations in and concepts for efficient fabrication. In our laboratory, which is accredited and recognised as meeting international standards, we test the characteristics of construction elements and products for their suitability and safety. In this connection, we also work actively on standardisation issues with national and international committees and specialist groups.

Research unit Timber and Composite Construction. We carry out interdisciplinary research and work, looking into supporting and composite structures. We also investigate issues relating to construction physics. We work together with planning offices and manufacturers, as well as with companies in the building industry, with whom we develop and test products and construction components, and even entire buildings. We have modern laboratories at our disposal. The requirements of both statics and building physics need to be considered in numerous buildings. We therefore carry out joint research with our partners into the aspects of sound, temperature and damp insulation that are of relevance in practical terms.

Research unit Materials and Wood Technology. We develop and optimise products based on wood – the raw material, working material and building material. Our work includes the development of new wood and wood composite materials. We are an important point of contact for the wood industry internationally when it comes to developing multi-functional materials. In adhesives and joining technology, we are leaders in wood welding – both with and without adhesives. We also develop new, environmentally friendly adhesives systems for the wood sector, making a substantial ecological contribution. Furthermore, we work in the areas of processing technology and treatment of wood surfaces, studying and developing the powder coating of derived timber products, with a special focus on application, fusion and hardening.

Natural Phenomena and Geotechnics

Research unit Natural Phenomena and Geotechnics. We develop processes for ensuring the quality of our soil and bodies of water over the long term. We work on measures and guidelines for their protection from mechanical stress and pollution, as well as on systems for cleaning them. We create the basis for assessing protective measures and evaluating potential dangers, thus contributing to protecting people and the environment against natural phenomena. We examine geotechnical constructions, or construction elements, such as retaining walls, prestressed and non-prestressed anchors, pile foundations and shallow foundations. The main focus lies on continued development of existing applications for optimising utilisation and costs.

Center for Development and Cooperation CDC

As part of our international cooperation and development programs, we offer research and development services, knowledge and technology transfer and professional training courses, as well as management and business courses to emerging and developing countries. We offer services in the form of consultancy, training and evaluation. We are interested in entering into partnerships with development organisations, research institutes, non-governmental organisations and private companies in order to carry out new projects.

www.ahb.bfh.ch/cdc

SME Center Wood

The SME Center Wood, a centre for SMEs in the timber industry, is a proactive and dynamic contact point, hub, innovation platform and information tool for small and medium-sized enterprises, associations, research institutions and others in the Swiss wood industry. Its sponsor is Wood Network, the «timber network». The SME Center Wood was supported in its early phase by the holz21 programme and is now supported by w⁶, the consortium for knowledge and technology transfer in Switzerland's Mittelland region. The Wood Network consists of representatives of the seven universities of applied sciences, the EMPA and the ETH Zurich. The main focus of its activities is initiating and carrying out forward-looking projects and activities, as well as promoting communication between the various partners within the network and industry. The network is supported by the CTI, the Swiss government's innovation promotion agency, which recognises it as an R&D consortium.

www.kmuzentrumholz.ch

Interested?
Get in touch with us!

**Research unit Architectural Processes**

Dr. Joachim Huber
Telephone +41 34 426 41 09
E-Mail joachim.huber@bfh.ch

**Research unit Management and Building Processes**

vacant
Telephone +41 34 426 41 12
E-Mail ivo.lenherr@bfh.ch

**Research unit Production and Logistics**

Eduard Bachmann
Telephone +41 32 344 03 88
E-Mail eduard.bachmann@bfh.ch

**Research unit Facades, Finishing and Furniture**

Urs Uehlinger
Telephone +41 32 344 03 94
E-Mail urs.uehlinger@bfh.ch

**Research unit Timber and Composite Construction**

Andreas Müller
Telephone +41 32 344 03 19
E-Mail andreas.mueller@bfh.ch

**Research unit Materials and Wood Technology**

Dr. Frédéric Pichelin
Telephone +41 32 344 03 42
E-Mail frederic.pichelin@bfh.ch

**Research unit Natural Phenomena and Geotechnics**

Martin Stolz
Telephone +41 34 426 42 66
E-Mail martin.stolz@bfh.ch



● **Bern University of Applied Sciences**

Architecture, Wood and Civil Engineering
Research and Development

Telephone +41 32 344 03 41

Fax +41 32 344 03 91

E-Mail fe.ahb@bfh.ch

Biel

Solothurnstrasse 102

P.O. Box

CH-2500 Biel 6

Burgdorf

Pestalozzistrasse 20

P.O. Box 1058

CH-3401 Burgdorf

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Please send the following document(s)

- Architectural Processes**
- Management and Building Processes**
- Production and Logistics**
- Facades, Finishing and Furniture**
- Timber and Composite Construction**
- Materials and Wood Technology**
- Natural Phenomena and Geotechnics**
- Center for Development and Cooperation CDC**

- Range of courses at the Bern University of Applied Sciences, Architecture, Wood and Civil Engineering**
- Joint Master of Architecture**
- Master of Engineering in Wood Engineering**
- Master of Science in Engineering**

- Annual further education programme**
- MAS Conservation of monuments and conversion**
- MAS Timber construction**
- CAS Basics of sustainable construction**
- CAS Renewing the building stock**
- CAS Protecting buildings against natural hazards**
- CAS Solar architecture**
- CAS Construction of housing estates**
- CAS Evaluation of real estate**
- CAS Systems of timber construction**
- CAS Multi-storey timber construction**
- CAS Timber structures**
- NDS HF Business management**

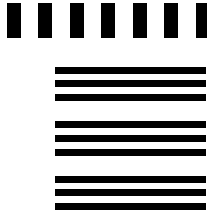
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Bern University of Applied Sciences

Architecture, Wood and Civil Engineering
Research and Development
Solothurnstrasse 102
P.O. Box
CH-2500 Biel 6