WUFI®

Hygrothermal Building Envelope and
Indoor Climate Simulation

WUFI® PRO, 2D, PLUS

WUFI® in Standards and Guidelines

Hygrothermal simulations are state-of-the-art. References to standards and guidelines include:

– EN 15026: Hygrothermal performance of building components and building elements – Assessment of moisture transfer by numerical simulation.
– WTA-Guideline 6-2-01/E: Simulation of Heat and Moisture Transfer (www.wta.de).
– ANSI/ASHRAE Standard 160: Criteria for Moisture-Control Design Analysis in Buildings.

WUFI® Seminars

Fraunhofer IBP, ORNL and cooperation partners provide seminars for continuous education in hygrothermics and WUFI® application at many locations worldwide. For more information:
www.wufi.com

WUFI® Licenses

A license is required for commercial application of WUFI®. Details can be found on our homepage or by inquiry via email
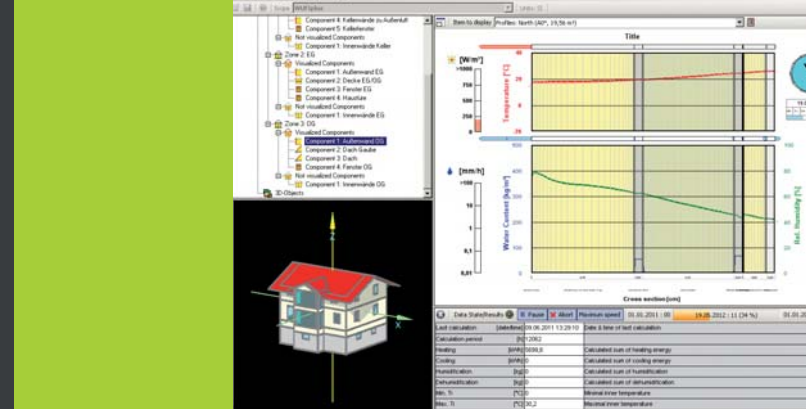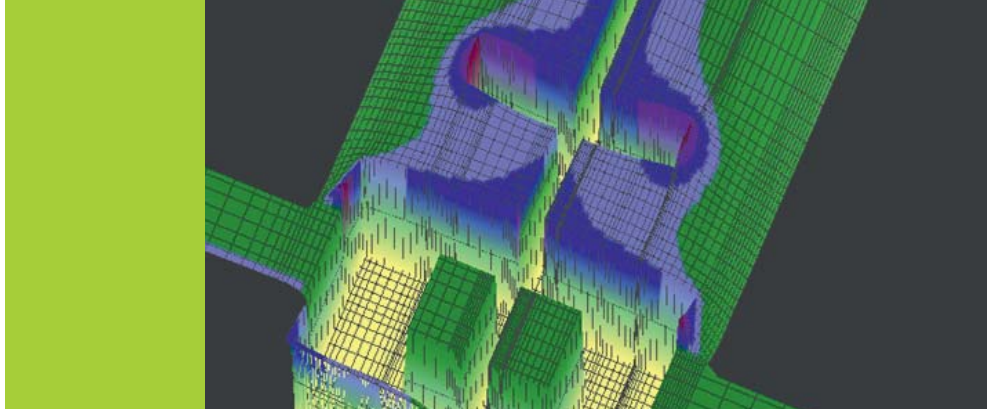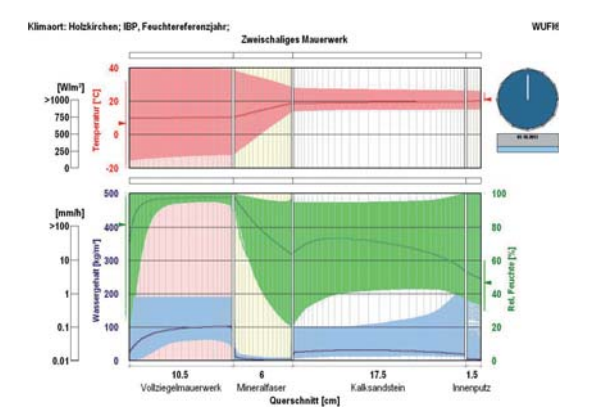Licenses: order@wufi.com
Application: support@wufi.com

WUFI® on the Web

Further information and application examples, seminar schedule, etc. can be found on our homepage:
www.WUFI.com I www.WUFI-Forum.com I www.WUFI-Wiki.com

Our Cooperation Partners

WUFI® PRO (MULTILINGUAL)

WUFI® Pro is the standard tool for one-dimensional hygrothermal evaluation of building envelopes. Previous methods (e.g. »Glaser«) consider only the risk of condensation under steady state conditions. Important physical phenomena like moisture storage and liquid transport are disregarded. The same is true for relevant climate effects like wind-driven rain and solar radiation.

WUFI® Pro calculates the dynamic hygrothermal behaviour of building assemblies using real climatic conditions. Thus you can analyse the performance of your design under any climate and predict:

– drying time of construction
– water absorption due to driving rain
– additional moisture entry due to rainwater leakages and vapour convection
– the influence of materials with variable diffusion resistance on the moisture balance
– moisture influence on thermal performance of the construction
– long-term system behaviour or hygrothermal consequences of construction modifications
– the hygrothermal behaviour of pipe insulation

WUFI® 2D (ENGLISH)

Some constructions cannot be modelled accurately by one-dimensional simulation. In these cases two-dimensional calculations with WUFI® 2D should be performed. Application examples are:

– moisture conditions at structural and geometrical thermal bridges – especially if the hygrothermal conditions inside the structure and not only on the surface are evaluated
– simulation of joints, connections and corner details
– timber framed constructions with multiple insulation layers
– building components with anisotropic materials
– three dimensional simulation of punctual penetrations with radial symmetry

The input in WUFI® 2D and also the calculation is in comparison to WUFI® Pro more time-consuming. As far as two-dimensional problems can be solved one-dimensionally (incl. simple approaches for ventilation and rain water leakages) the simulation with WUFI® Pro is normally easier. Generally WUFI® 2D should be used in addition and not as an alternative to WUFI® Pro.

WUFI® PLUS (ENGLISH)

WUFI® Plus is a new holistic model that considers all hygrothermal interactions between the indoor air and the building envelope in detail. It analyzes the wall, roof and basement components and the indoor conditions with different heating and air-conditioning approaches.

It employs the same GUI structure as WUFI® Pro to facilitate its application.

In addition to the hygrothermal assessment of single components, WUFI® Plus allows evaluations such as:

– appropriate ventilation to avoid mould growth
– shading strategies to reduce overheating
– influence of thermal and hygric inertia on building energy demand and indoor environment
– hygrothermal performance of buildings with exceptional indoor conditions or intermittent operation