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Knowledge Base

Energieinstitut Vorarlberg

CONTACT: www.energieinstitut.at

Heatbridge catalogue

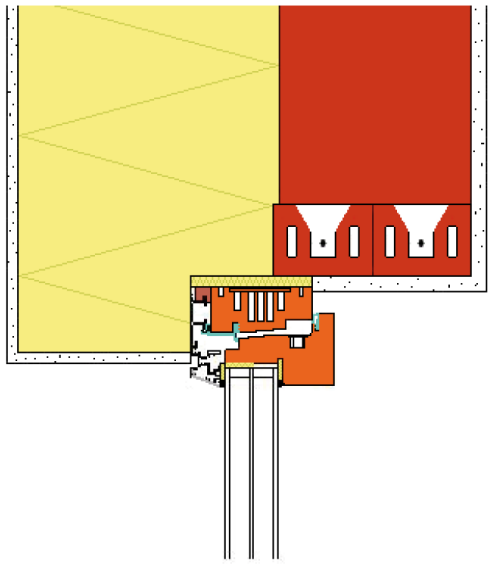
window installation

KEYWORDS:

- [ ] Building culture
- [x] Construction
- [ ] Closed loops
- [ ] Governance
- [x] Planning Tools
- [ ] Ecology
- [x] Energy efficiency
- [ ] Indicators
- [ ] Mobility
- [ ] Technology transfer

TARGET GROUP:

- [x] Architects
- [x] Builders
- [ ] Citizens
- [x] Craftsmen
- [ ] Home Owners
- [ ] Planners
- [ ] Politicians
- [ ] Policy Makers



Results and outcomes (use cases):

The detailed consideration of all energy flows around the window plays an important role in the energetic and economic optimization of buildings. As a tool for optimization the thermal bridge Catalog window installation is ready for download since 15.03.2012, drawn up by the Energy Institute Vorarlberg.

In the project AlpBC a catalogue of thermal bridges for renovation will be developed, which will be published in autumn 2013.

In the catalog values for a variety of window installation situations are summarized for old buildings: besides the psi value for the installation situation, data for the shading by the window reveal, minimum surface temperatures and maximum non-critical moisture are explained.

For the old catalogue also one of the pilot buildings of the project AlpHouse is used: the rehabilitation of a Bregenzerwald farmhouse with 2-fold in the inner glazing and winter windows in the outer window rabbet.

The data on thermal bridges are built for more than 100 combinations of four different wall constructions, 8 window frames and four installation variations.

The energetic effect of each different window installation is quantified on the basis of the heat demand and the final energy demand by the use of two example buildings.

The catalog was designed to work on screen as hyperlinked PDF document.

The catalog can be printed in part or in whole.

The development is made possible by the project AlpBC and own funds of the Energy Institute Vorarlberg.

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Description:

The catalogue "Thermal bridges in window installations" was edited in 2011 by the Energy Institute and by funds from the klima:aktiv program of the Austrian Federal Ministry of Agriculture.
Through the calculation of several hundred different installation situations of modern windows in different designs, architects get a tool to plan and check the energy efficiency of their planning quickly.

The PDF tool for the installation of windows in new construction since 2012 is available on the website of the Energy Institute free of charge. It is used by various universities for teaching and was presented at the annual meeting of the German window maker association in Rosenheim 2012.

Relevance for inter-municipal planning (AlpBC):

The catalogue enables planning on an energy efficient and economical basis.
It allows planners to generate energy savings at no additional cost.
Each planner and window fitters can see the effect of his window installation details in the catalog and is able to optimize the detail accordingly.

With the optimization of a detail possibly material may be saved in another place.
Window manufacturers welcomed the catalog after its first presentation because they provide high quality windows, which do not provide the desired performance, if partly incorporated in wrong places.

The knowledge of the effects of thermal bridges window installation is not yet widespread among architects and window manufacturers and in general the effects are underestimated. Any dissemination of this catalogue in digital form for new construction and after completion for renovation would be highly desirable.

Relevance for policy goals (Alpine Space, Europe and the region):

The catalog is new and innovative. It is in education and also in practice, applied as estimation tool.
Windows play an increasingly important role in the energy balance of energy-efficient buildings and influence both, the profits and the losses significantly.

Until 2020 we want to construct buildings, which have a primary energy need close to Zero and produce this out of renewable energy. In this context we cannot leave significant losses untreated, such as thermal bridges in energy efficient windows.

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