

# Brief report



Creation of a documentation policy for calculations according to DIN V 18599 and application of this directive on sample projects - taking into account the testability of energy certification of buildings according to EPBD

## DIN V 18599 documentation

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The responsibility for the contents of the Report lies with the authors

The research report was funded by the

**FORSCHUNGSINITIATIVE**  
**ZukunftBAU**

of the Federal Institute for  
Construction, urban and regional research.

Filing:

II 3-F20-12-1-024 / SWD-10.8.18.7-12.31



## **Title**

Creation of a documentation policy for calculations according to DIN V 18599 and application of this directive on sample projects - taking into account the testability of energy certification of buildings according to EPBD

## **Occasion / initial situation**

For an energy balance with DIN V 18599, there is no uniform outcome documentation at the moment. Aim of the project is a binding documentation policy that takes into account both requirements: requirements of planners and legislators. The objective is a comparison of computer programs, debugging and validation of the results. The results should become a supplement to the standard.

## **Subject of the research project**

At the beginning of the project a draft documentation on DIN V 18599 was given, which had not previously been tested on any energy balancing project. The paper was largely created by the project team. The ideas for the documentation of the standardization committee were already widely concentrated in this paper. Moreover, it was known that due to requirements of the EU EPBD calculations of energy certificates must be testable.

The project aim is to design forms and instructions for filling in, which fulfill planners and legislators requirements. In addition, the project is an application test of the resulting supplementary sheet before publication with Beuth Verlag. This ensures that the documentation directive can be filled with calculation data on basis of DIN V 18599 in general. The research project thus fits in with the series of accompanying activities to DIN V 18599 and amendment of the Energy Saving Ordinance.

There are three main project focuses:

- **Documentation of calculations according to DIN 18599 using Word and Excel (extract data from professional programs)** – Creation of 3 example documentations on the basis of previous projects and on the basis of the proposal for the documentation –as discussion and consultation basis for further steps. After consultations with federal state members and software manufacturers: application of the final documentation on the three sample projects.
- **Description of the results for the implementation within the software industry as well as text for the standardization committee** – Detailed description of the computational implementation for software vendors. A consultation with the "Quality Association of DIN V 18599 software" has been taken place. For the purposes of this project, it is sufficient to check with the quality community, whether the ideas are feasible in principle. Moreover, it is determined, how the supplementary sheet must be documented so that future software implementation can be done easily. As part of the project it is illustrated by examples, how (mathematically) the form values have to be generated, so that a software company could reprogram it. Transferring the paper (forms and explanatory text) to the standardization committee as basis for publication of the supplementary sheet, as well as the technical documentation for software manufacturer or the Quality Association.
- **Consulting activities** – discussion (oral and written) with representatives from federal and state governments to modify the documentation, so that a final policy documentation can be created. The focus is explaining the possibilities that can be extracted from the calculation procedure at all.

A consultation with the Software Quality Association reveals that the project results can be implemented within DIN 18599 software. Master forms have to be created. They will be filled out with calculation results, which are already given in software. It is guessed that the results can be programmed close in time of entry into force of an amendment to the Energy Saving Ordinance.

The work was adopted into the standardization committee of DIN V 18599 (NA 005-12-01 GA). The editors are going to create a Supplement 3 to DIN 18599 from it. This will be discussed in the committee and modified if necessary. It is assumed that the implementation will occur, according to the current situation.

### **Conclusion**

The documentation sheets were transferred to EXCEL. The forms were filled out with data of three test buildings. The files were handed over to software manufacturers, whose feedback has been included into the final version.

A textual description was created, which describes calculations, references the standard and will be basis for or a supplement respectively to the discussion in the standardisation committee.

The project documentation and an example were presented to representatives of the federal states. Where possible, findings of the discussions have been taken into account in the documentation. It is assumed that the developed forms include data that are necessary for assessment of energy certificates.

### **Key data**

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- total costs: 19.825,00 €
- proportion of federal grant: 12.825,00 €
- duration: 20.09.2012 to 20.07.2013

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- picture 2: 2.tif, Form content 1, 11 and EnEV
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- picture 5: 5.tif, Form content 5a and b
- picture 6: 6.tif, Form content 6 and 7
- picture 7: 7.tif, Form content 8, 9 and 10