

Short version

Typecasted component superstructures - Specifying the standard heat transition coefficients from the Publication of the regulations for data collection for non-residential buildings

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Start/ Starting position

Determining the U-values constitutes a major challenge for non-residential buildings as there are generally no audit documents available. In order to allow for a more precise application of the residentially relevant tables of standard heat transition coefficients for non-residential buildings (tables 2 and 3 of the Publication), these were adapted to include specific components and building age classes of non-residential buildings.

The subject of the research project

The tables of the standard heat transition coefficients contained in the “Publication of the regulations for data collection and data use for non-residential buildings” (table 2 and 3 of the Publication) reveal deficiencies:

- rough classification
- some components of non-residential buildings are missing
- the building age classes end with the class “1995 and later”; therefore, later years of construction cannot be adequately shown.

The goal of the research project is to supplement the tables of standard heat transition coefficients with additional components and further building age classes. Furthermore, a component catalogue is provided to enable the user to determine the U-values for existing buildings regardless of the age class of the building.

When drawing up Energy Performance Certificates for non-residential buildings, Schmidt Reuter ascertained that it is possible to increase the accuracy of the tables of the standard heat transition coefficients contained in the Publication. During the implementation of the research project it appeared that neither Schmidt Reuter nor any external partner companies had access to considerable documents for old non-residential buildings. Therefore, a literature research was agreed with the customer. The aim was to extend the tables of the Publication by later construction years and to integrate additional components. A component catalogue of typical superstructures was also drawn up.

The existing building age classes in the Publication were supplemented with the updates of the energy saving regulation.

It was possible to allocate the component data to the building age classes on the basis of over 550 records from Schmidt Reuter’s own project components, the literature research as well as data from external companies. In a further step, the collected data were graphically processed and analyzed, while removing obvious outliers.

The tables of the standard heat transition coefficients from the Publication were supplemented with additional components. The additional components comply with

the building specifications of the non-residential buildings. This comprises in particular components of prefabricated buildings (WBS 70), cavity walls, curtain wall panels (opaque section of the curtain wall) as well as the lower canopy of the underground car park. The double façade was also integrated into the transparent components section.

For buildings which were erected after 1995, new age classes were drawn up (1995 to 2001, 2002 to 2006 and later).

The typical component superstructures of Schmidt Reuter were compiled together with the U-values in an opaque component catalogue, together with other superstructures of external companies and those found during the literature research.

Results

With the extended tables of standard heat transition coefficients from the Publication, values that take the EnEV amendments of the last years into account are now available. Components frequently found in non-residential buildings were integrated into the tables. It appeared that the previous standard heat transition coefficients from the Publication can be confirmed.

The catalogue of opaque components enables the user to further increase the accuracy of the U-value determination beyond the standard values in the Publication.

Supplementary information provided by forwarding experiences made by engineers when drawing up Energy Performance Certificates for non-residential buildings round off the research project.

Key data

Short title:	Typecasted component superstructures
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