

WP 2.2: Minutes Workshop 2 KIT, RWTH, IWU

Geospatial Data and Energy Performance Simulation of Buildings

Date:	06.02.2019, 9:30 – 15:30 Uhr	Who / when
Minutes:	Michael Hörner (IWU)	
Participants:	Karl-Heinz Häfele, Joachim Benner (KIT), Avichal Malhotra (RWTH) Julian Bischof (IWU)	
Mailing to:	All participants, Darren Robinson, Christoph van Treeck	
Annexes:	1. ...	

Building Function

IWU shows a first draft of a matching table of ALKIS¹ building function categories corresponding to the proposed 12 main categories. Unfortunately, only about 50% of the ALKIS building function categories are meaningful enough to assign one of the main categories. The matching table will be completed.

In order to calculate the energy performance of non-residential buildings a standard structure of the usage zones should be attributed to each building category. Reliable statistical data is lacking so far.

Better than standards are real data on building function and usage zones from screening sample surveys on site f.i. in district models. IWU will deliver basic data from ENOB:dataNWG for German average buildings. Additionally, in ENOB:dataNWG an Excel-Survey-Tool for efficiently gathering simulation relevant data from existing non-residential buildings has been developed.

To better understand the reliability of ALKIS building functions we will compare building functions of sample buildings from ENOB:DataNWG assigned during site visits in the screening process with their ALKIS counterparts.

First KIT will enrich the ALKIS data with the 12 main building function categories and then IWU will compare the sample data to that. Details of the procedure have to be defined.

IWU

KIT / IWU

Building Footprints

ALKIS objects AXGebäude – so called building footprints - are not the same as Buildings from the building performance simulation point of view. In many cases ALKIS objects AXGebäude only represent parts of a building, sometimes they overlap more than one building.

Questions arise from this observation:

- How can buildings be identified from AXGebäude objects automatically?

¹ ALKIS® - Amtliches Liegenschaftskatasterinformationssystem = Authoritative Real Estate Cadastre Information System

- How can AXGebäude objects be merged to the buildings automatically?
- How can areas of building envelope parts like walls and roofs be calculated automatically from 3D-building data in ALKIS / CityGML?
- Should data from the land register be used (local sub-district, cadastral district, and cadastral unit) to identify real estate property on a cadastral unit with the building consisting of more than one AXGebäude object? (Compare <http://www.rheinland-pfalz-in-3d.rlp.de/>)
- Is on-site screening to reliably determine the interdependence of building footprints and buildings?

To be discussed in next IBPSA Project 1 Expert Meeting

CityGML Energy ADE and E+

IWU demonstrated an exemplary workflow for a virtual non-residential building with two usage-zones and a condensing boiler implementing data from ENOB:dataNWG building energy data sample survey for automated energy performance simulation with E+. While only a few input data necessary for E+ can be collected during the standardized on-site inspections all other inputs are set to standard defaults of E+.

KIT will use these data to further develop the CityGML-Toolbox and the interface to EnergyADE.

IWU will send KIT example .idf files, the Excel-Survey-Tool (empty and with example data) for guidance on what is necessary to implement into the CityGML Energy ADE.

KIT

IWU

Teaser+

RWTH presents preliminary results of exemplary calculations with Teaser+.

In order to compare results calculations shall be done with the virtual FZK-Building example and the same set of input variables, for example in an ASHRAE BES-Test manner. Furthermore, for the comparison between the implemented approaches, RWTH will share the input Weather files and TEASER+ (which is currently under development).

KIT / RWTH

Darmstadt, 18.02.2019

Michael Hörner