Landesamt für Digitalisierung,
Breitband und Vermessung

Data format description Official Building Polygons of Germany (HU-DE)

For the data distribution from the data stock of the Central Office for House Coordinates and Building Polygons (ZSHH)

Version 3.0   **Stand: 14.04.2025**

Valid from the provision of the HU-DE 2025

1. Description of the data format

The distribution format for Building Polygons (HU-DE) is the AdV Shape format as described in the AdV specifications on the data format "Shape" (AdV Shape Profile, version 1.0.0, updated 31 January 2014).

2. Data contents

Building Polygons are objects with spatially referenced surrounding polygons that describe the building outlines of the real estate cadastre. Here the object fields of buildings and structures defined (definition according to ALKIS-OK) in ALKIS (Authoritative Real Estate Cadastre Information System) are applied.

The surrounding of the Shape file contains no building parts.

Permitted geometries of the surroundings are polygons and multi-polygons according to the description of the OGC (Open Geospatial Consortium) standard of the OGC specification 06-103r4 (https://www.ogc.org/de/publications/standard/sfa/).

For the data stock of the Building Polygons all the objects modelled as areas from the following object groups are used:

- AX_Gebaeude,
- AX_Turm
- AX_BauwerkOderAnlageFuerIndustrieUndGewerbe,
- AX_VorratsbehaelterSpeicherbauwerk,
- AX_BauwerkOderAnlageFuerSportFreizeitUndErholung,
- AX_SonstigesBauwerkOderSonstigeEinrichtung und
- AX_HistorischesBauwerkOderHistorischeEinrichtung

A detailed list of all the defined structure definitions for ALKIS can be found under the following link:

https://repository.gdi-de.org/schemas/adv/citygml/Codelisten/BuildingFunctionTypeAdV.xml

If the objects in this list are recorded in ALKIS in the respective Land, they will be derived as building polygons.

Die HU-Objekte besitzen drei Pflichtattribute:

1. „AGS" (official municipality key):

   „LLRKKGGG" (Land, administrative region, rural/urban district, municipality) = 8 characters without semicolon

   <u>Example</u> of notation: 09184135

Land (LL)	09	Bayern
Regierungsbezirk (R)	1	Oberbayern
Kreis / kreisfreie Stadt (KK)	84	München
Gemeinde (GGG)	135	Oberschleißheim

   The entries of the attribute "AGS" correspond with the entries of the columns landschl, regbezschl, kreisschl and gmdschl in the product House Coordinates of Germany (HK-DE), (see data format description HK-DE, from version 5.0) or the attribute gmdschl in the Land Parcel Information (FS-DE), (see data format description FS-DE).

2. „OI" (Objectidentifier):

   The HU objects receive a 16 characters object identifier (OI) as a unique identifier. The notation of the OI is recognized according to the generation rules of the current documentation on the modelling of geoinformation of the official surveying and mapping - GeoInfoDok.
   Example: DEBYvAAAAACA7DsO

3. „GFK" (building function):

   The GFK attribute is linked to the corresponding value of the underlying ALKIS object according to the list of all defined building and structure functions (https://repository.gdi-de.org/schemas/adv/citygml/Codelisten/BuildingFunctionTypeAdV.xml) occupied.

   Example: 31001_1222

The coordinates are specified in the spatial reference system ETRS89/UTM in zone 32 and zone 33 in metres with three decimal places* (East-value EEEEE,EEE / North-value NNNNNNN,NNN). The notation of the UTM coordinates is obtained from the descriptions of the currently valid GeoInfoDok on the spatial reference system ETRS89/UTM <zn> in the respective zone <zn> 32 (=EPSG-Code 25832) or 33 (=EPSG-Code 25833).

* An exception to this are coordinates that result from the derivation of the database by breaking up circular arcs into circular segments. In order to minimize geometry errors, the coordinates are not rounded, so they are not limited to three decimal places. These coordinates with more than three decimal places are created by calculation and therefore do not reflect a higher cadastral accuracy.

3. Data files, file names

The Shape format consists of four separate files for each Land: the main file, index file, dBASE file and projection file. These files have the specified file extensions ".shp", ".shx", ".dbf" and ".prj". The file name is the same for all four files.

Example:

Main-File:	gebaeude-by.shp
Index-File:	gebaeude-by.shx
dBASE-File:	gebaeude-by.dbf
Projektion:	gebaeude-by.prj

- The dBASE file contains the attributes "AGS", "OI" and "GFK" for each HU object.
- The attribute of the official municipality key "AGS" is in the 1st column, that of the object identifier "OI" in the 2nd column and that of the building function ID "GFK" in the 3rd column of the .dbf.

4. Update

The Official Building Polygon data stock is updated through the provison of complete data sets. The ZSHH derives the HU-DE from the ALKIS data of the Laender. It receives the necessary cadastral data in complete or differential data from the Laender quarterly on the first Wednesday of March, June, September and December each year and creates a central database. The resulting HU-DE are usually available as complete data set 4 to 6 weeks after these dates.

For more details on this information, please do not hesitate to contact ZSHH.

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