Building Assessment using Google Maps and Google Street View Guide

Information

The calculations used in this tool are based on the document “Leitfaden für die Berechnung des Heizwärmebedarfs (HWB) für Wohngebäude im Jahresbilanzverfahren“ (Guideline for the calculation of the heating demand for residential buildings using the annual balance method). This guideline is provided by “Die Umweltberatung”, an organisation of “Die Wiener Volkshochschulen GmbH”, financed by the City of Vienna. (https://www.umweltberatung.at/download/?id=EBA_B2_LeitfadenHWBBerechnung2019.pdf)

As this tool uses a simplified calculation method and assumptions, the results may differ from reality. Nevertheless, it provides a first estimation and shows the comparability between different variants, especially for the application of measures to reduce the heating demand of buildings. All calculations are traceable and the tool modified as needed.

Adding rows

Rows can be added easily. Select the last row, go to the bottom right corner of the rightmost cell and drag and drop when the black cross appears. IMPORTANT: After you have done this, an icon called “Auto Fill Options” will appear in the bottom right corner of the rightmost cell. Always select “Copy Cells” instead of “Fill Series”.

Default values

All default values are assumptions and should be overwritten if more detailed information is available.

Building Data Workflow

Open the Tool in Excel, Google Maps and Google Street View ideally on two screens and familiarise yourself with the building(s).

Column C Quantity

Can be more than 1 if e.g. a housing estate consists of exact similar buildings.

Column D Type of Building

Detached; Semi-Detached; Terraced: Use detached if the building is standing free. Use Semi-Detached if one side of the building is adjacent to another building and choose if the length (column D) or the width (column E) is adjacent. Use Terraced if two sides of the building are adjacent and choose between length and width.

Column E/F Building Length/Width

Use Google Maps to measure the length and width of the building by clicking right and choosing “Measure distance”. If the building is not rectangular, try to simplify the shape of the building.

Column G Storeys (heated)

Use Google Street View to determine the occupied and heated storeys of the building.

Column H Storey height

If detailed information is available fill in the storey height, otherwise use 3m as default.

Column I Year of Construction

If the year of construction is known choose the according time period. If not, the following table can be used as a guidance.

after 2010

2010 – 2000

2000-1990

1990-1980

before 1970

Column J/K/L/M/N Window/door area

By default, the window/door area is calculated by multiplying the envelope area by 15% for detached buildings, 14% for semi-detached buildings and 13% for terraced buildings and then equally distributed across all orientations. If more detailed information is available, if the building does not appear to meet the default value, or if, for example, a semi-detached building has no east-facing windows the Window-Door Area Assistant can be used to calculate the window and door area. The default values in columns J, K, L, M and N must then be overwritten.

Column O Country/Region

Select the appropriate country or region.

Column P Residents

This value is an estimate of the average for Belgium, France, Germany, Ireland and the Netherlands, which is 52 m^2/person. (https://entranze.enerdata.net/) If the real number of residents is known the estimated value must be overwritten.

Column Q Heating System

Select the appropriate heating system. If no information is available, it must be assumed.

Column R Hot Water Generation electric and separated from Heating System (yes=x)

If the hot water generation is electrical and NOT provided by the same system that provides the heating, this cell must be marked with an “x”.

Measures Workflow

This tool offers four measures to improve the energy demand of the building. To apply a measure the cell next to the measure must be marked with an “x”.

Column T/U Additional Exterior Wall Insulation

The thickness of the additional wall insulation can be set in column T. The default value is 12cm.

Column V/W Additional Roof Insulation

The thickness of the additional wall insulation can be set in column V. The default value is 20cm.

Column X/Y Windows Replacement U-Value

The U-Value of the new windows can be set in column X. The default value is 1.0 W/m^2K.

Column Z: Heating System after Retrofit

If a new heating system should be installed, select the appropriate heating system from the dropdown menu, otherwise select “No retrofit”.

Column AA Hot Water Generation electric and separated from Heating System after Retrofit (yes=x)

If the hot water generation after a retrofit is electrical and NOT provided by the same system that provides the heating, this cell must be marked with an “x”.