

Energy performance certificate for residential buildings


in accordance with sections 16 et seqq. of the German Energy Saving Ordinance (EnEV)

Note: This is merely a translation of the german Energy Performance Certificate. Only the German version of this form does comply with the German Energy Saving Ordinance (EnEV).

Valid until: 12.01.2010

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Building

Type of building	Apartment block		
Address	Any Street 1a, 12345 Anytown		
Part of building	Front building		
Year of construction of building	1927		
Year of construction of installation engineering ¹⁾	1982		
Number of flats	9		
Building floor area (A _N)	575 m ²		
Renewable energies	Non-existent		
Ventilation	Window ventilation		
Occasion for issuing the energy performance certificate	<input type="checkbox"/> New building <input type="checkbox"/> Refurbishment (modification/extension) <input type="checkbox"/> Other (voluntary) <input checked="" type="checkbox"/> Renting/sale		

Notes on information about the energy quality of the building

The energetic quality of buildings can be determined by calculating the **energy consumption** under standard conditions or by the analysis of **energy consumption**. The Building floor area is used as reference area in accordance with the EnEV which differs in general with the living floor area. The indicated reference values are intended to permit approximate comparisons (Explanations – see page 4).

- The energy performance certificate has been issued by means of calculations based on the **energy demand**. The results are rendered on page 2. Additional information on consumption is voluntary.
 - The energy performance certificate has been issued by analysing the **energy consumption**. The results are rendered on page 3.
- Data collection (energy demand/energy consumption) by: houseowner assessor
- Additional information about energy quality are attached to the energy performance certificate (voluntary information).

Notes on the use of the energy performance certificate

The energy performance certificate is issued for information only. The data in the energy performance certificate refers to the entire residential building or the part of the building mentioned above. The energy performance certificate is intended only to provide an approximate comparison of buildings.

Assessor

Max Anyman
Any company
Any Street 12
12345 Anytown

13.01.2010

Date

Max Anyman

Signature of the assessor

¹⁾ Multiple entries possible.

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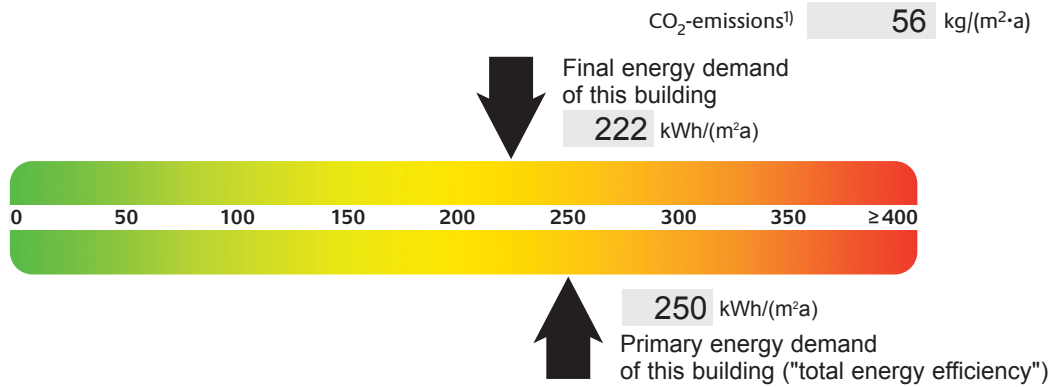
in accordance with sections 16 et seqq. of the German Energy Saving Ordinance (EnEV)

Calculated energy demand of the building

Any Street 12
Front building

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Energy demand



Requirements in accordance with EnEV²⁾

Primary energy demand

Actual value kWh/(m²·a) Required value kWh/(m²·a)

Energy quality of the building envelope H'_T

Actual value W/(m²·K) Required value W/(m²·K)

Summer heat protection (in new building) observed

Method used for energy demand calculations

- Method in accordance with DIN V 4108-6 and DIN V 4701-10
- Method in accordance with DIN V 18599
- Simplifications in line with § 9 para. 2 EnEV

Final energy demand

Energy source	Annual final energy demand in kWh/(m ² ·a)			Total in kWh/(m ² ·a)
	Heating	Hot water	Auxiliary equipment ⁴⁾	
Natural gas H	177,9	40,5	0,0	218,4
Power	0,0	0,0	3,6	3,6

Replacement measures³⁾

Requirements under § 7 No. 2 EEWärmeG⁵⁾

The required values tightened by 15% are complied with.

Requirements under § 7 No. 2 in conjunction with § 8 EEWärmeG

The EnEV required values are tightened by %

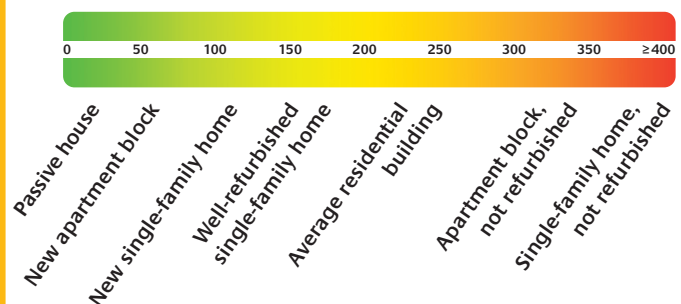
Primary energy demand

Tightened value required: kWh/(m²·a)

Transmission heat loss H'_T

Tightened value required: W/(m²·K)

Reference values – final energy demand



Notes on the calculation method

The German Energy Saving Ordinance (EnEV) allows two alternative calculation procedures for calculating the energy demand, which can lead to different results in individual cases. Due to standardised boundary conditions, the indicated values do not permit certain conclusions about the actual energy consumption. The stated demand values are specific values per square metre of building floor area (A_N) in accordance with the German Energy Saving Ordinance.

1) Voluntary information 2) For new buildings and modernisation in the case of § 16 para. 1 sentence 2 EnEV 3) Only for new buildings in the case of application of § 7 No. 2 EEWärmeG 4) Including cooling, if applicable. 5) EEWärmeG: German Renewable Energies Heat Act

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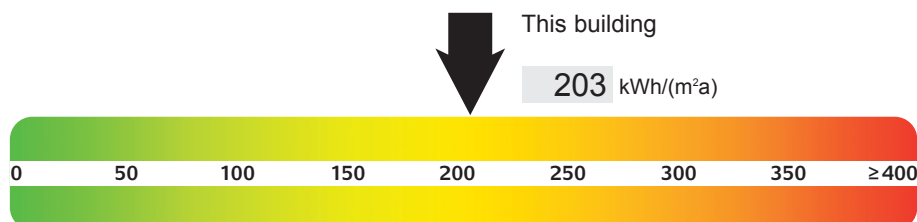
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Measured energy consumption of the building

Any Street 12
Front building

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Specific value of energy consumption



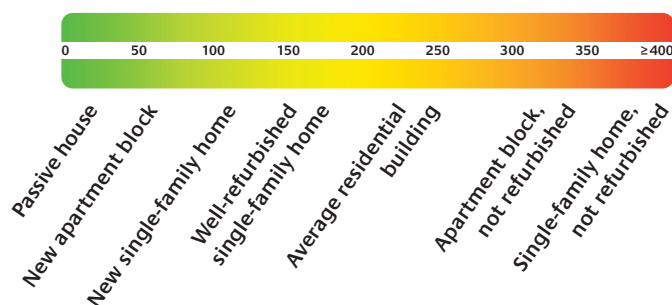
Energy consumption of hot water: included not included

The building is also cooled; the typical energy consumption for cooling for contemporary devices is approx. 6 kWh/(m²·a) building floor area and is not included in the specific value of energy consumption.

Measured consumption – heating and hot water

Energy source	Time period		Energy consumption [kWh]	Prop. for hot water [kWh]	Climate factor	Specific value of energy consumption kWh/(m²·a) (adjusted for time and climate)		
	from	to				Heating	Hot water	Spec. value
Natural gas H	01.01.2006	31.12.2006	106.268	19.128	1,07	162,2	33,3	195,4
Natural gas H	01.01.2007	31.12.2007	114.826	20.669	1,06	173,6	35,9	209,5
Natural gas H	01.01.2008	31.12.2008	109.422	19.696	1,08	168,5	34,3	202,8
Average								202,6

Reference values – final energy demand



The exemplary calculated reference values refer to buildings in which boilers provide heat for hot water and heating.

Please note, when comparing a specific value of energy consumption which does not contain a proportion for hot water, a figure of 20-40 kWh/(m²·a) may be used for hot water depending on size of the building.

Please note, when comparing a specific value of energy consumption of a building heated by a district or local heating system 15-30% less energy consumption is expected than in comparable buildings with boiler heating.

Notes on the procedure

The procedure for determining specific values of energy consumption is given by the German Energy Saving Ordinance. The values are specific values per square metre of building floor area (A_N), in accordance with German Energy Saving Ordinance. The actual energy consumption of an apartment or a building differs from the specific value of energy consumption in particular due to weather conditions and changing user behavior.

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Explanations

Energy demand – page 2

In this energy performance certificate, the energy demand is represented by the annual primary energy demand and the final energy demand. These details are determined by calculation. The specified values are calculated on the basis of the construction documents and/or building-related data and under assumption of standardised boundary conditions (such as standardised climate data, defined user behaviour, standardised indoor temperature and indoor heat gains, etc.). In this way the energy quality of the building can be assessed independently of user behaviour and weather conditions. Due to standardised boundary conditions, the indicated values do not permit certain conclusions about the actual energy consumption.

Primary energy demand – page 2

The primary energy demand represents the total energy efficiency of a building. It considers not only the final energy, the so-called "upstream chains", but also exploration, production, distribution, transformation of each set of energy (e.g. fuel oil, gas, electricity, renewable energy, etc.). Low values indicate a low energy demand and a high energy efficiency as well as a careful and an environmentally friendly use of energy resources. In addition, the energy demand associated with the CO₂ emissions of the building can be declared voluntarily.

Energy quality of the building envelope – page 2

The stated value is the specific transmission heat loss (formula in the EnEV: H'_{T}) relative to the heat-transmitting surface area. This is a measure for the average energy quality of all heat-transmitting surface areas (exterior walls, ceilings, windows, etc.) of a building. Low values indicate good structural heat insulation. In addition, the German Energy Saving Ordinance (EnEV) sets standards for the summer heat insulation (protection from overheating) of a building.

Final energy demand – page 2

The final energy demand calculated according to technical rules, indicates the required annual energy for heating, ventilation and hot water. It is calculated under standard climate and standard terms and is a measure of the energy efficiency of a building and its systems engineering.

The final energy demand is the energy which has to be delivered to the building at standardised conditions taking account of energy losses in order to ensure the standardised indoor temperature, hot water requirements and the necessary ventilation. Low values indicate low demand and thus high energy efficiency.

The reference values for the energy demand are exemplarily calculated and are intended as indicators for an approximate comparison of the values of this building with the reference values. The values of each of the categories are indicated with in approximate ranges. In individual cases, these values may also be outside the given ranges.

Specific value of energy consumption – page 3

The reported specific value of energy consumption for the building is based on the billing of heating and hot water costs, if necessary and determined according to the German Heating Cost Ordinance and / or by other appropriate consumption data. The energy consumption data for the entire building is used, not the individual residences or utility units. Meteorological factors are used to convert the measured energy consumption for heating regarding to the actual local weather data to a standardised German-wide average.

For example, high consumption in a single hard winter does not lead to a poorer assessment of the building.

The specific value of energy consumption gives an indication of the energy quality of a building and its heating system. Low values indicate low consumption. Conclusions about the expected future consumption are not possible, especially the consumption data of individual units vary widely because they depend on their location in the building, the current use and the individual response.

Mixed-use buildings

The German Energy Saving Ordinance contains special provisions on energy performance certificates for mixed-use buildings. After that are – depending on the circumstances – either a combined energy certificate for all usage or two separate energy certificates issued for dwellings and for other uses, which is recognisable on page 1 of the certificate (if applicable "part of building").