

DIN EN 15603:2008-07 (E)

Energy performance of buildings - Overall energy use and definition of energy ratings

Contents		Page
Foreword		4
Introduction		5
1	Scope	6
2	Normative references	6
3	Terms and definitions	7
4	Symbols, units and subscripts	14
5	Assessment of energy performance of buildings	15
5.1	Energy uses	15
5.2	Assessment boundaries	15
5.3	Types and uses of ratings	16
6	Calculated energy rating	17
6.1	Calculation procedure	17
6.1.1	General	17
6.1.2	Calculation step	17
6.1.3	Calculation principles of the recovered gains and losses	18
6.1.4	Effect of integrated control	19
6.2	Building thermal needs	19
6.3	Technical building systems	20
6.3.1	Technical system thermal losses, electrical and auxiliary energy without building generation devices	20
6.3.2	Thermal energy generation systems	21
7	Measured energy rating	23
7.1	General requirements	23
7.2	Assessment period	24
7.2.1	General	24
7.2.2	Extrapolation to an integral number of years	24
7.3	Assessing the used amounts of all energy carriers	27
7.3.1	General	27
7.3.2	Metered fuels (electricity, gas, district heating and cooling)	27
7.3.3	Liquid fuels in tanks	27
7.3.4	Solid fuels	27
7.3.5	Energy monitoring	28
7.4	Correction for weather	28
8	Weighted energy ratings	28
8.1	Types of ratings	28
8.2	Types of factors or coefficients	28
8.2.1	General	28
8.2.2	Average factor or coefficient	29
8.2.3	Marginal factor or coefficient	29
8.2.4	End use factor or coefficient	29
8.3	Primary energy rating	29
8.3.1	General	29

8.3.2	Primary energy	29
8.3.3	Primary energy factors	30
8.4	Carbon dioxide rating	31
8.4.1	Carbon dioxide emissions	31
8.4.2	CO2 emission coefficients	31
8.5	Policy energy rating	31
9	Validated building calculation model	32
9.1	Introduction	32
9.2	Procedure - validation of the building calculation model	32
9.3	Climatic data	33
9.4	Occupancy data	33
9.4.1	Internal temperature	33
9.4.2	Air infiltration and ventilation	33
9.4.3	Internal heat sources	33
9.4.4	Hot water use	34
9.4.5	Artificial lighting	34
9.5	Ratings based on the validated calculation model	34
10	Planning of retrofit measures for existing buildings	34
11	Report	35
Annex A (informative) Methods for collecting building data		38
A.1	Data on building envelope	38
A.1.1	General	38
A.1.2	Assessment of thermal transmittance of opaque building elements	38
A.1.3	Assessment of thermal transmittance and total solar energy transmittance of transparent elements	38
A.1.4	Assessment of thermal characteristics of thermal bridges	39
A.1.5	Assessment of air flow rates and infiltration	39
A.2	Thermal capacity	39
A.3	Heating systems	40
A.4	Ventilation systems	40
A.4.1	Assessment of airflow rates	40
A.4.2	Thermal efficiency of heat recovery systems	40
A.4.3	Assessment of auxiliary energy use	41
A.5	Cooling systems	41
A.6	Building operation	41
Annex B (informative) Energy monitoring		42
B.1	Energy signature	42
B.2	H-m method	44
Annex C (informative) Other uses of energy		46
C.1	General	46
C.2	Residential buildings	46
C.3	Office buildings	46
Annex D (informative) Calorific values of fuels		48
D.1	General	48
D.2	Solid and liquid energy carriers	48
D.3	Gaseous fuels	49
Annex E (informative) Factors and coefficients		50
Annex F (informative) Confidence intervals		51

F.1	Definition	51
F.2	Assessment of confidence interval	51
F.3	Examples	52
F.3.1	General	52
F.3.2	Indications on confidence intervals	53
Annex G (informative) Example		55
G.1	Building description	55
G.2	Standard calculated rating	55
Bibliography		62