

DIN EN 15316-2-1:2007-10 (E)

Heating systems in buildings - Method for calculation of system energy requirements and system efficiencies - Part 2-1: Space heating emission systems

Contents		Page
Foreword		4
Introduction		6
1	Scope	7
2	Normative references	7
3	Terms and definitions, symbols and units	7
3.1	Terms and definitions	7
3.2	Symbols and units	9
4	Relation to other EPBD-standards	10
5	Principle of the method	12
5.1	Energy calculation	12
5.2	Thermal energy required for heat emission	12
5.3	Auxiliary energy $W_{em,aux}$	13
5.4	Recoverable system thermal losses $Q_{em,ls,rbl}$ and non-recoverable system thermal losses $Q_{em,ls,nrbl}$	13
5.5	Heat demand for space heating, building heat requirement Q_H	13
5.6	System thermal losses $Q_{em,ls}$	14
5.7	Calculation periods	14
5.8	Splitting or branching of the space heating system	14
6	Energy calculation for a heat emission system	14
6.1	General	14
6.2	Heat loss due to non-uniform temperature distribution	15
6.3	Heat loss due to embedded surface heating devices	16
6.4	Heat loss due to control of the indoor temperature	16
6.5	Auxiliary energy, $W_{em,aux}$	17
7	Recommended calculation methods	17
7.1	General	17
7.2	Method using efficiencies	18
7.3	Method using equivalent increase in internal temperature	18
Annex A (informative)	Energy losses of the heat emission system, adapted from German regulation DIN 18599	20
A.1	Heat emission	20
A.2	Efficiencies for free heating surfaces (radiators); room heights 4 m	22
A.3	Efficiencies for component integrated heating surfaces (panel heaters) (room heights 4 m)	24
A.4	Efficiencies for electrical heating (room heights 4 m)	26
A.5	Efficiencies air heating (non-domestic ventilation systems) (room heights 4 m)	27
A.6	Efficiencies for room spaces with heights 4 m (large indoor space buildings)	28
A.7	Efficiencies for room spaces with heights > 10 m	29
Annex B (informative)	Equivalent increase in internal temperature - adapted from the French regulation RT2005	31

B.1	General	31
B.2	Zones	31
B.3	Spatial variation of temperature due to stratification	31
B.4	Variation of temperature due to control	32
Annex C (informative) Auxiliary energy		34
C.1	General	34
C.2	Large indoor space buildings (h > 4 m)	35
Bibliography		38