

DIN EN 15251:2012-12 (E)

Indoor environmental input parameters for design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics

Contents		Page
Foreword.....		4
Introduction		5
1 Scope.....		6
2 Normative references		6
3 Terms and definitions		7
4 Symbols and abbreviations		11
5 Interactions with other standards		11
6 Design input criteria for dimensioning of buildings, heating, cooling, mechanical and natural ventilation systems		13
6.1 General.....		13
6.2 Thermal environment.....		14
6.3 Indoor air quality and ventilation rates.....		15
6.4 Humidity.....		16
6.5 Lighting.....		16
6.6 Noise.....		17
7 Indoor environment parameters for energy calculation		17
7.1 General.....		17
7.2 Thermal environment.....		17
7.3 Indoor air quality and ventilation		18
7.4 Humidity.....		19
7.5 Lighting.....		19
8 Evaluation of the indoor environment and long term indicators.....		19
8.1 General.....		19
8.2 Design indicators.....		19
8.3 Calculated indicators of indoor environment		20
8.4 Measured indicators		20
8.5 Subjective evaluations		21
9 Inspections and measurement of the indoor environment in existing buildings		22
9.1 General.....		22
9.2 Measurements		22
10 Classification and certification of the indoor environment.....		24
10.1 General.....		24
10.2 Detailed classification and certification		24
10.3 Recommended overall evaluation of the indoor environment and certification		24
Annex A (informative) Recommended criteria for the thermal environment		25

A.1	Recommended categories for design of mechanical heated and cooled buildings.....	25
A.2	Acceptable indoor temperatures for design of buildings without mechanical cooling systems	27
A.3	Recommended indoor temperatures for energy calculations.....	31
Annex B	(informative) Basis for the criteria for indoor air quality and ventilation rates	32
B.1	Recommended design ventilation rates in non-residential buildings.....	32
B.1.1	General.....	32
B.1.2	Method based on person and building component	32
B.1.3	Method based on ventilation rate per person or per m² floor area.....	35
B.1.4	Recommended values of CO₂ for energy calculation	36
B.2	Recommended design ventilation rates in residential buildings	36
B.3	Recommended criteria for dimensioning of humidification and de-humidification	38
B.4	Recommended ventilation during un-occupied hours	39
Annex C	(informative) Example on how to define low and very low polluting buildings	40
Annex D	(informative) Recommended criteria for lighting.....	41
Annex E	(informative) Indoor system noise criteria of some spaces and buildings	42
Annex F	(informative) Long term evaluation of the general thermal comfort conditions.....	43
Annex G	(informative) Recommended criteria for acceptable deviations.....	46
G.1	Building Category	46
G.2	Length of deviation	46
Annex H	(informative) Methodologies for subjective evaluations	47
Annex I	(informative) Examples of classification and certification of the indoor environment.....	48
I.1	The design criteria used.....	48
I.2	Whole year computer simulations of the indoor environment and energy performance	49
I.3	Long term measurement of selected parameters for the indoor environment	49
I.4	Subjective responses from occupants	49
	Bibliography	51