

# 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

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