ISO/TR 17772-2:2018-04 (E)

Energy performance of buildings - Overall energy performance assessment procedures - Part 2: Guideline for using indoor environmental input parameters for the design and assessment of energy performance of buildings

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Termsanddefinitions 1

4 Symbols and abbreviated terms 2
4.1 Symbols 2
4.2 Abbreviated terms 2

5 Interactions with other standards and use of categories 3

6 How to establish design input criteria for dimensioning of buildings, heating, cooling, ventilation and lighting systems 3
6.1 General 3
6.2 Thermal environment 4
6.2.1 General 4
6.2.2 Mechanically heated and/or cooled buildings 4
6.2.3 Buildings without mechanical cooling 5
6.2.4 Increased air velocity 7
6.3 Design for indoor air quality (ventilation rates) 7
6.3.1 General 7
6.3.2 Methods 8
6.3.3 Non-residential buildings 9
6.3.4 Residential buildings 9
6.3.5 Access to operable windows 10
6.3.6 Filtration and air cleaning 10
6.4 Humidity 11
6.5 Lighting 11
6.5.1 General 11
6.5.2 Non-residential buildings 11
6.5.3 Residential buildings 12
6.6 Noise 12

7 Indoor environment parameters for energy calculation 12
7.1 General 12
7.2 Thermal environment 12
7.2.1 General 12
7.2.2 Seasonal and monthly calculations 12
7.2.3 Hourly calculations or dynamic building simulation 12
7.3 Indoor air quality and ventilation 13
7.3.1 General 13
7.3.2 Non-residential buildings 13
7.3.3 Residential buildings 13
7.4 Humidity 13

7.5 Lighting 13

8 Evaluation of the indoor environment and long-term indicators 13
8.1 General 13
8.2 Design indicators 13
8.3 Calculated indicators of indoor environment 14
8.3.1 Simple indicator 14
8.3.2 Hourly criteria 14
8.3.3 Degree hours criteria 14
8.3.4 Overall thermal comfort criteria (weighted PMV criteria) 14
8.4 Measured indicators 14
8.4.1 General 14
8.4.2 Thermal environment 15
8.4.3 Indoor air quality and ventilation 15
8.4.4 Lighting 15
8.4.5 Noise 15
8.5 Subjective evaluations 16

9 Inspections and measurement of the indoor environment in existing buildings 16
9.1 Measurements 16
9.1.1 General 16
9.1.2 Thermal environment 16
9.1.3 Indoor air quality 17
9.1.4 Indoor light quality measurements based on illuminance 18

10 Classificationandcertificationoftheindoorenvironment 18
10.1 General 18
10.2 Detailed classification and certification 18
10.3 Recommended overall evaluation of the indoor environment and certification 18

Annex A (informative) Information about national annexes 19

Annex B (informative) Recommended criteria for the thermal environment 20

Annex C (informative) Basis for the criteria for indoor air quality and ventilation rates 25

Annex D (informative)Exampleonhowtodefinelowandverylowpollutingbuildings 42

Annex E (informative) Examples of criteria for lighting 45

Annex F (informative) Indoor system noise criteria of some spaces and buildings 46

Annex G (informative) Occupants schedules for energy calculations 48

Annex H (informative) Long-term evaluation of the general thermal comfort conditions 54

Annex I (informative) Recommended criteria for acceptable deviations 56

Annex J (informative) Methodologies for subjective evaluations 59

Annex K (informative)Examplesofclassificationandcertificationoftheindoorenvironment 60

Annex L (informative) Recommended criteria for personalized systems 63

Annex M (informative) Recommended methods for substitute ventilation air by air cleaning 65

Annex N (informative) WHO criteria for health in the indoor environment 68

Bibliography 69